For More Info: Call AtlasTelephones.com
1-888-689-1711

IVX® C-Class

WITH voice mail

Installation Manual

0450-0406
Rev. H

We Make It Easy To Communicate

About ESI

ESI (Estech Systems, Inc.) is a privately held corporation based in Plano, Texas. Founded in 1987, ESI designs and builds innovative telecommunications products for businesses like yours. Because of their powerful combination of value and features, ESI products are consistently recognized by industry publications and leaders.

Copyright © 2007 ESI (Estech Systems, Inc.).
IVX is a registered trademark, and *Esi-Dex, Integrated Answering Machine,* and *Verbal User's Guide* are trademarks, of ESI. *CompactFlash* is a registered trademark of SanDisk Corporation. *Motorola* and *ColdFire* are registered trademarks of Motorola, Inc. *Texas Instruments* is a registered trademark of Texas Instruments Corporation. *Rayovac* is a registered trademark of Rayovac Corporation. *Velcro* is a registered trademark of Velcro Industries B.V. *Panasonic* and *DBS* are registered trademarks of Matsushita Electric Corporation of America. *Smart Jack* is a trademark of Westell Technologies, Inc.
Information contained herein is subject to change without notice.
ESI products are protected by various U.S. Patents, granted and pending.
ESI is an ISO 9001:2000-certified company. Visit ESI on the Web at **www.esi-estech.com**.

Table of contents

General description **A.1**
Telephone system features A.1
Voice mail features A.2
Auto attendant features A.2

Hardware overview/installation **B.1**
Phone models B.2

System programming: An introduction **C.1**
Programming keys C.1
Entering alphanumeric characters C.2
System fixed numbering plan C.2
System programming overview: Programming menu C.3
Accessing programming C.3

Function 1: System parameters **D.1**
Function 11: Initialize D.1
Functions 12 and 13: Installer and Administrator passwords D.1
Function 14: System clock D.2
Function 15: System timing parameters D.3
Function 16: System feature parameters D.3
Function 17: System speed-dial D.7
Function 18: SMDR serial port baud rate D.7

Function 2: CO lines **E.1**
Function 21: CO line programming E.1
Function 22: Access codes/toll restriction E.3
Function 23: CO line parameters E.4
Function 24: Caller ID E.5

Function 3: Extension programming **F.1**
Function 31: Extension definition and routing F.1
Function 32: Extension feature authorization F.3
Function 33: Department programming F.5
Function 35: Extension button mapping F.6

Function 4: Auto attendant programming **G.1**
Function 41: Auto attendant branch programming G.1
Function 43: Automatic day/night mode table G.4

Function 5: Voice mail programming **H.1**
Function 53: Guest/info mailboxes H.1
Function 55: Message notification H.2
Function 56: Cascade paging mailboxes H.4

Function 6: Recording **I.1**
Function 61: Re-record main greeting I.1
Function 62: Record directory names I.2
Function 63: Message-on-hold (MOH) programming I.2

SMDR **J.1**
Tabular SMDR format J.1
CSV SMDR format J.1
Reporting conventions and rules J.2

Index

(This page included for pagination purposes only.)

General description

Welcome to **IVX® C-Class** (*IVX* stands for *Integrated Voice Exchange*.). IVX C-Class (IVX 20c) offers the small business an all-in-one phone system including not only phone service but also voice mail and automated attendant. The system itself is housed in a surprisingly small case that is wall-mounted in the telephone equipment room. An external, wall-mounted power transformer powers the system.

Telephone system features

> **Important:** Some of the features this manual describes are either optional or are exclusive to IVX C-Class Generation II, and will be so noted throughout. Additionally, some product art may vary from the actual product depending whether the product is IVX C-Class or IVX C-Class Generation II.

The IVX C-Class system has a three-line, six-station, two-analog-port configuration.

- **Impressive capacity** — Handles six CO lines and up to 12 stations.
- **ESI Feature Phones** — Compact and stylish, yet rugged, the 24-Key Digital Feature Phone includes a high-quality speakerphone, large and informative multi-functional display and a specially designed key layout with several dedicated keys to minimize or eliminate the need to memorize codes. ESI also offers the 12-Key Digital Feature Phone with similar design and basic functions (See page B.2). At least one 24-Key Digital Feature Phone must be purchased with each C-Class system.
- **Extensive help** — ESI's Verbal User's Guide™ uses spoken and displayed help prompts to help everyone from the Installer through the Administrator down to the least experienced end user. Easily accessible with one press of the **HELP** key. You may also go to *www.esiusers.com* for detailed on-line help.
- **Enhanced Caller ID** — Allows one-touch automatic message return.[1] [2]
- **Live call recording**[3] — Can record any conversation or personal memo along with moving or copying of any recording to another user's voice mailbox.
- **Call waiting** — Includes helpful display, showing both calls' Caller ID information, and easy one-key toggling between calls.
- **Conference calling** — Includes two conference bridges, and a conference may contain up to four parties, so the IVX C-Class system can support two conferences of four parties each. Analog phones on the system also may be parts of conferences.
- **Esi-Dex™ speed-dialing**[2] — Calls any number using three separate lists (personal, station, and system); uses Caller ID[1] information or direct keypad entries.
- **Dedicated overhead paging interface** — Allows for external paging through overhead speakers or multi-zone paging units (amplification required)
- **911 alert** — Provides immediate line access if any station with line access dials **9 1 1** to report an emergency; sends a message via the serial port indicating the start date, time, station number and end-time of the 911; also sounds a warning tone at the operator station and displays, for example:
  911 CALL FROM
  X102 JOHN JAMES
- **Status indicator lamp** — Indicates three conditions of the 24-Key Digital Feature Phone: off-hook, ringing and new voice mail message.

---

[1] This and all other references to Caller ID service within this manual assume the end-user organization subscribes to Caller ID service from its telephone service provider.
[2] IVX C-Class Generation II passes Caller ID data to both digital and analog ports; Generation I passes it only to digital ports.
[3] Not available on the 12-Key Feature Phone.

Voice mail features

- **Up to four built-in voice mail ports** — These are **in addition to** the up-to-20 possible call-processing ports; thus, you may build the system to its maximum for call-handling without having to balance voice mail needs versus call-handling needs.
- **Highest-grade voice quality** (64-kilobit/second sampling) for voice mail and other storage of voice messages. The C-Class offers two hours of storage on the two-port system and six hours of storage on the four-port system.
- **Quick Groups™** — Makes it easy to leave voice mail messages for several users.
- **Quick Move™** — Records a conversation into another user's mailbox.
- **Virtual Mailbox Key™** allows easy monitoring of a second mailbox.
- **Different mailbox types**, including broadcast, cascade, and guest.
- **Message-on-hold recordings** — Up to five recording: three prerecorded, one customized, and one live entry. This feature is also available on using the Integrated Answering Machine mailbox 501.
- **Message Recycle Bin** (undelete) — Remembers, and can restore, each mailbox's 10 most recently deleted messages.

Auto attendant features

- **18 branches** — Allow you and your customer to set up a caller-friendly answering environment, including a company directory.
- **Virtually unlimited call routing** — Includes pager or cell phone notification.

Hardware overview/installation

IVX C-Class starts out as a three-line, six-station, two-analog-port system, but can expand to handle as many as six lines and 12 digital stations (and two analog ports).

Base Cabinet I

The wall-mounted **Base Cabinet I** measures 8½″ W × 11″ H × 3″ D, and is designed for easy installation and easy component access. It houses the Memory Module and Main Board (3x6x2), one multi-purpose serial port, a MOH connector and another port card slot — which accepts an additional 360 port card.

Main board

The main board combines leading-edge hardware components — including a Motorola® ColdFire® processor and Texas Instruments® DSP structure — along with proprietary operating system software. The board provides: system control of the Memory Module and port cards[1]; a standard RS-232C DB9 serial port; a built-in 33.6 Kbps modem for remote access; an external paging-device interface; and MOH interface. The C-Class main board has a three-line, six-digital station, two-analog port configuration. The CO line ports support standard CO and Centrex loop-start lines; ground-start CO lines are not supported. The analog ports provide a standard 24-volt, two-wire connection to fax machines, analog phones, and modems. Only one analog device can be connected to each analog station port.

Port card

There is only one port card type, **360**, available for IVX C-Class.[1] The 360 port card is equipped with a standard female Amphenol connector for easy wiring to a standard 66 or 110 block. This C-Class port card cannot be used on any other ESI phone system. The 360 port card provides circuits to connect up to three loop-start CO lines and six Digital Feature Phones.

> **Note:** The system must contain a 360 port card to access both conference bridges.

Wall-mount transformer

The **System Cabinet** requires a 1.25-amp transformer (supplied).

Memory Module

The **Memory Module**[2] consists of a CompactFlash® card. The memory module on IVX C-Class contains all system programming and configuration data, including pre-loaded voice prompts.

[1] Generation II only. IVX C-Class Generation I systems are configured 6x12x2 and don't support additional port cards.
[2] Memory Modules are packaged separately and are mounted in the cabinet during installation.

Phone models

IVX C-Class supports two phone models, each of which connects to the cabinet via standard two-wire twisted pair.

- **24-Key Digital Feature Phone** — Two-line, 32-character display; 12 programmable feature keys; equipped with speakerphone
- **12-Key Digital Feature Phone**— One-line, 16-character display; nine programmable feature keys.

Notes: Programming cannot be done from the 12-Key Digital Feature Phone.

When the phone is in its most upright position, use the wall hook located under the handset to keep the handset in place.

Phone overlays

Each ESI Phone comes with one overlay for the programmable feature keys. To order additional overlays, visit the DESI™ Web site at *www.desi.com*. You can also download the free *Windows*®-based software, *DESI Lite*, which allows you to print on the overlays. For assistance with DESI products, please consult the DESI Web site.

Cautions

Important: This information complies with the requirements of Underwriters' Laboratories (UL) and UL Standard 60950.

When using this telephone equipment, always exercise basic safety precautions in order to minimize the risk of fire, electric shock or injury to persons. **Before proceeding, please read the following:**

- The airflow vents on the IVX case **must** be free of obstruction for proper cooling. Similarly, **do not** install the cabinet in areas of extreme heat or improper ventilation. **Never** insert objects of any kind through the ventilation slots on the system cabinet; doing so may result in contact with dangerous voltages — or cause an electrical short capable of producing fire or shock.
- **Do not** use liquids or aerosols to clean any IVX equipment; rather, use a cloth that is only **slightly** damp.
- The IVX telephone/voice-mail system contains **no** components that are serviceable by either non-Resellers or non-manufacturer technicians. **All service must be referred to the Reseller for further handling.**
- To reduce the risk of fire, use **only** 26 AWG or better telecom wire.

Power supply

Always disconnect the power supply and telephone lines from the system cabinet **before** opening the case for service or component disassembly or replacement.

Heed all warnings and instructions in documentation or marked on the cabinet or peripheral equipment.

Note: If necessary, review "Wall-mount transformer" (page B.1) for information on the type of power supply for the IVX C-Class system.

Fuse

Contact the factory **before** attempting to replace the fuse. The fuse is marked with "F1" and is located at the top (when the system is installed on the wall) of the motherboard.

Battery

"Caution: There is a danger of explosion if the onboard lithium battery is incorrectly replaced. Replace only with Ray-O-Vac BR1225 (or equivalent). Dispose of used batteries according to the battery manufacturer's instructions."

Regulatory information

United States of America

Registration

The CO line telephone numbers, FCC registration number, and ringer equivalence number (REN) of this equipment must be provided to the telephone company before installation. (See below for FCC registration number and ringer equivalence number.)

FCC Part 15

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and — if not installed and used in accordance with the instruction manual — may cause harmful interference to radio communications (in which case, the user will be required to correct the interference at his/her own expense).

FCC Part 68

This equipment complies with Part 68 of the FCC Rules. On the side of this equipment is a label that contains, among other information, the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. You must, upon request, provide this information to your telephone company.

The REN is helpful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all, areas, the sum of the RENs of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, the telephone company will notify you in advance but, if advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

Your telephone company may make changes to its facilities, equipment, operations or procedures that could affect the proper functioning of your equipment. If so, you will be notified in advance, to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, the telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

Installation: The device is equipped with a USOC connector.
Registration Number: 1T1MF08B33727
Ringer equivalence number (REN): 0.8

Hardware installation

Site location

As with most electronic equipment, the environmental considerations for this site need to observe good common sense. Provide a dry, clean, and accessible area.

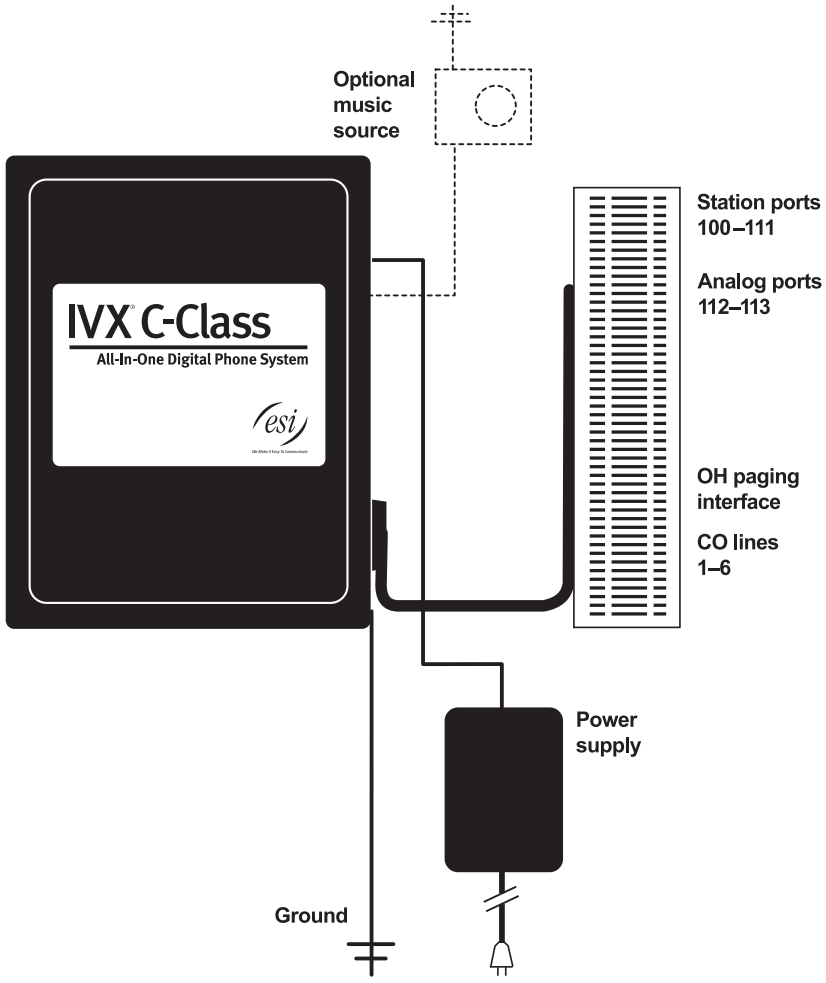
Locate space in the telephone equipment room, which will provide easy connection to the 66 blocks and 110VAC power. **The location should be no further than 1,000 feet from the farthest station.**

Ambient room temperature must be 40^0 –80^0 (F.), and relative humidity no higher than 90%.

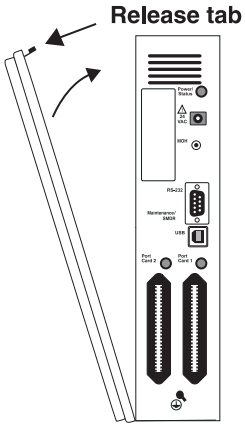
> **Notes: Do not** place the equipment or run station cabling near high voltage electrical equipment or electrical lines susceptible to high voltage surges from air conditioner compressors, etc.
> **Do not** mount the equipment in a place that receives direct sunlight.

The system and supporting components should be mounted to a half-inch (or thicker) plywood backboard. Here is the layout of a typical IVX C-Class installation:

IVX C-Class typical installation



Opening the cabinet



The lid on all cabinets is held in place by two tabs that rest in slots in the bottom of the case, and a release tab that snaps into an opening in the top-center of the cabinet and is secured by a retaining screw.

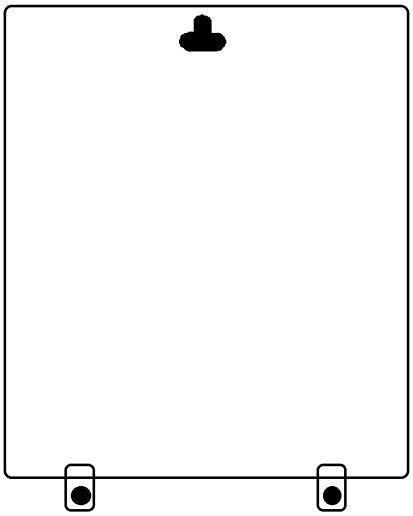
To remove the lid:

1. Remove the retaining screw and depress the release tab at the top of the cabinet.
2. Rock the lid back from the top.
3. Lift and pull the lid free from the slots in the bottom of the cabinet.

Mounting the cabinet

Use three #8 hex-head screws. Note the position of the three mounting holes in IVX.

1. Screw in the top screw to the backboard (at least half-inch thick plywood) leaving about one-eighth-inch clearance between the screw head and the plywood.
2. Hang the unit using the keyhole at the top of the case.
3. Level the unit and install the bottom two screws.



Attach the power transformer to the wall, allowing sufficient length in both cords to reach the power connector on the upper right side of the cabinet and to reach a UPS or a dedicated 110 VAC outlet.

Memory Module

> **Note:** The Memory Module has a **proprietary** formatting scheme — **do not** attempt to install a non-ESI CompactFlash®. Contact ESI for a replacement Memory Module, if needed.

Adding or replacing the Memory Module will require that the system be powered down.
Replacing the Memory Module erases all its configuration data and custom recordings.
(Prompts stay intact, however.)

Grounding instructions

System grounding (supplemental ground) is as follows:

- The conductor wires can be no smaller than the ungrounded branch-circuit supply conductors (usually 16-gauge or larger).
- Acceptable wire: bare **or** covered with green (or green-and-yellow-striped) jacket.
- Conductors (and power receptacles) shall connect to earth ground at the service equipment (usually a cold water pipe or copper ground rod).
- The supplemental ground must: be used regardless of power cord ground, be connected to the ground lug on the bottom of the IVX cabinet, and retain ground connection when the IVX power supply module is unplugged.

> **Note:** IVX C-Class system lines are protected against a 10 KV surge **only** if the earth ground procedures described above are followed.

Power

The system cabinet requires a 120 VAC outlet (if possible, a dedicated outlet). Use **only** the Class-2 power supply module provided. A clean, isolated power source in conjunction with a UPS (see "UPS," *below*) is **STRONGLY** recommended. The system draws a maximum of 25 watts.

If AC power is interrupted, the system will drop all connections. When power is restored, the system will resume normal operation in approximately one minute, having retained its full programming and clock setting.

UPS

For system protection and to maintain uninterrupted operation, an uninterruptible power supply (UPS, or "battery back-up") is **STRONGLY** recommended. A UPS rated for 200 VA will provide approximately two hours of uninterrupted service for an IVX C-Class system.

> **Note:** The remaining information under "UPS" comes from *Technical Update* #216.

Most people have heard about UPSs, but seem to think that there is just one kind of device that goes by that name. In fact, there are several different major designs in use by today's major UPS manufacturers. These makers share much of the blame for confusing UPSs' end users by, far too often, lumping different designs under the "UPS" name.

UPSs can first be broken down into **system types**:

- **Stand-by** — A very simple design that affects power only when either a lag/brownout occurs below, or a spike/surge occurs above, a certain threshold. When either occurs, the unit trips — *i.e*., goes into battery mode. This "cleans" the voltage and helps to keep any load safe. Industry average "trip" times are 2–8 ms. No other filtration of AC power is performed.
- **Line interactive** — Constantly monitors inbound voltages, and uses special circuitry to boost low voltages and clamp high voltages without having to use the batteries. Indeed, the batteries are used only if the input voltage drops below acceptable levels (typically about 12% below normal), goes out completely or rises to dangerous levels (typically about 14% above normal) at which components will be damaged if line voltage is not removed. Industry average transfer time is 1–3 ms. (If voltage stays within its normal window, this unit continues to pass voltage, unaltered, from the wall.)
- **On-line** (or *full on-line*) — Constantly filters the power and performs a function known as double conversion (AC to DC to AC). This assures that the load — in this case, phone equipment — will receive not only uninterrupted, true sine wave output but also the cleanest, steadiest power possible throughout any foreseeable power disruptions or voltage irregularities. According to industry specs, it

is not unusual for these types of units to be able to regulate utility power, even when it drops to 27% below or rises to 33% above normal, all without using their batteries.

From this point, UPSs can be further broken down by inverter types, which determine output. These are:

- **Square wave**.
- **Modified sine wave** (or *quasi sine wave*).
- **Sine wave**.

Most devices with wall-mounted chargers, such as cordless drills or screwdrivers, can behave erratically — sometimes not allowing the charge circuit to engage at all — when operating with modified sine or square wave inverters. Small wall-based transformer-style power supplies, similar to those ESI phone systems use, can experience overheating problems with modified sine or square wave outputs, which occur while some UPSs are operating in battery mode. This overheating could eventually cause damage to the power supplies; and, in time, the damage could cause a spike through the phone system — seriously damaging some of the static-sensitive components inside the casing.

While the **true** sine wave UPS output power curve smoothly increases to its peak, then smoothly decreases (allowing connected loads and equipment to operate the same as they would from utility supplied wall power), the **modified** sine wave and square wave UPS output power curve will shoot straight up, level off at peak voltage and then drop straight down. Additionally troublesome is that the modified sine wave sits at zero voltage for a short period during the transition to or from batteries — which is the main difference between it and the square wave output of some UPS. Please note that this short interval during which the modified sine wave UPS sits at zero voltage can directly affect the transfer time of the UPS and could, theoretically, be enough to cause the phone equipment to reset or even “freeze.”

Though it is hard to predict exactly when different ESI systems will have problems with modified sine wave or square waveform UPSs (meaning during a power failure event or the recovery from one), it’s fair to assume that a problem will eventually arise from the use of such UPSs. **Therefore, ESI recommends that only true sine wave output UPSs provide backup power to our phone systems and equipment.**

LED functions

The unit's various LEDs are designed to provide visual feedback as follows:

Power LED

The **Power** LED is located on the top-right side of the cabinet and is illuminated when power is being applied to the system. This LED blinks periodically to indicate that the main processor is operational.

Memory Transfer LED

This LED is located inside the cabinet in the center of the main board. It serves as a diagnostic aid by flashing as data is transferred to and from the Memory Module.

MOH port

The MOH (messages-, or music-, on-hold) connector on the upper right side of the cabinet is a standard $^1/_8$″ monophonic mini-jack, used for loading custom MOH recordings or for playing live music-on-hold from an external source such as a radio or CD player.

Maintenance/SMDR serial port

The **Maintenance/SMDR** port is a standard DB9 serial connector located on the side of the cabinet. Use a standard shielded serial cable, DB9-to-DB9, for printer-to-computer (this is usually male-to-female).

> **Note:** The maximum distance from the cabinet is 100 ft.

The output from the Maintenance/SMDR port is, 8 data bits, 1 stop bit, and no parity. The pinout is:

Data Transmit	Pin 2
Receive	Pin 3
Ground	Pin 5

Range: Programmable for 300, 1,200, 2,400, 4,800, 9,600, 19,200, or 38,400 bps.
Default: 38.4K.

SMDR

The IVX C-Class system continuously outputs real-time SMDR call records to the port.

> **Note:** The system will buffer up to 1000 SMDR records (80 KB) in non-volatile memory (CompactFlash) when the maintenance port is in use for programming or uploading. When the buffer reaches capacity, the oldest records are discarded.

External paging device connection

A dry contact overhead-paging device can be connected to the system through the port card's 66 block. The overhead paging port is fixed (located on the main board) as extension 199 for programming purposes and user access.

Audio connection

The audio pair is connected to the 66 block at terminal 33 and 34. The pair's impedance is 600 ohms.

Dry contact control

The manner in which the dry contact pair is punched down on the 66 block sets the pair as normally open (sending a page to the port will close the contacts) or normally closed (sending a page to the port will open the contacts).

Connect the dry contact pair of the device to IVX as follows:

- Terminals 35 and **36** to provide normally **open** operation
  or
- Terminals 35 and **37** to provide normally **closed** operation.

The port can be used with zone paging units.

> **Note:** The port doesn't support talk-back paging (which requires a CO port), nor does it support CO ring through the port.

Amphenol cable connections

Connect a standard 66 Block using a male 50-pin Amphenol cable to the port card's female connector located on the bottom-right side of the cabinet. The connector closest to the wall is the first port card (which is the main board on the C-Class).

CO line connection

Local loop

The IVX C-Class system's advanced CO line circuitry provides for open loop detection and the system's built-in Caller ID interface.

> **Note:** Observe correct order of connection to preserve proper rotary hunting of the CO lines.

Station connection

The first six pairs on the Amphenol are station ports.

All stations are connected using a single pair. Each port position is pre-numbered and fixed as indicated in the 66 block wiring diagram ("Worksheet," page B.13).

> **Note:** The station runs can be up to 1,000 ft.

Digital stations

The digital station wiring is not polarity-sensitive. Only one phone can be connected per digital port.

Analog ports

The analog ports do not require that tip-and-ring polarity be observed. The analog ports can be used for 2500 type sets or for devices such as fax machines, cordless phones, etc., that can be connected via a normal tip-and-ring pair. Each analog port will support only a single analog device.

Station Numbering Plan

	Digital stations	Analog stations
Main board	100 through 105	112 through 113
Port card 1	108 through 112	n/a

Refer to pages B.11 through B.13 for punchdown assignments.

3x6x2 main board

Term	Wire color	Signal	RJ11	Port
1	White-Blue	Data+	Green	Digital
2	Blue-White	Data-	Red	
3	White-Orange	Data+	Green	Digital
4	Orange-White	Data-	Red	
5	White-Green	Data+	Green	Digital
6	Green-White	Data-	Red	
7	White-Brown	Data+	Green	Digital
8	Brown-White	Data-	Red	
9	White-Slate	Data+	Green	Digital
10	Slate-White	Data-	Red	
11	Red-Blue	Data+	Green	Digital
12	Blue-Red	Data-	Red	
13	Red-Orange			
14	Orange-Red			
15	Red-Green			
16	Green-Red			
17	Red-Brown			
18	Brown-Red			
19	Red-Slate			
20	Slate-Red			
21	Black-Blue			
22	Blue-Black			
23	Black-Orange			
24	Orange-Black			
25	Black-Green	Tip	Green	Analog
26	Green-Black	Ring	Red	
27	Black-Brown	Tip	Green	Analog
28	Brown-Black	Ring	Red	
29	Black-Slate			
30	Slate-Black			
31	Yellow-Blue			
32	Blue-Yellow			
33	Yellow-Orange			
34	Orange-Yellow			
35	Yellow-Green			
36	Green-Yellow			
37	Yellow-Brown			
38	Brown-Yellow			
39	Yellow-Slate	Tip	Green	CO
40	Slate-Yellow	Ring	Red	
41	Violet-Blue	Tip	Green	CO
42	Blue-Violet	Ring	Red	
43	Violet-Orange	Tip	Green	CO
44	Orange-Violet	Ring	Red	
45	Violet-Green			
46	Green-Violet			
47	Violet-Brown			
48	Brown-Violet			
49	Violet-Slate			
50	Slate-Violet			

360 port card

Term	Wire color	Signal	RJ11	Port
1	White-Blue	Data+	Green	Digital
2	Blue-White	Data-	Red	
3	White-Orange	Data+	Green	Digital
4	Orange-White	Data-	Red	
5	White-Green	Data+	Green	Digital
6	Green-White	Data-	Red	
7	White-Brown	Data+	Green	Digital
8	Brown-White	Data-	Red	
9	White-Slate	Data+	Green	Digital
10	Slate-White	Data-	Red	
11	Red-Blue	Data+	Green	Digital
12	Blue-Red	Data-	Red	
13	Red-Orange			
14	Orange-Red			
15	Red-Green			
16	Green-Red			
17	Red-Brown			
18	Brown-Red			
19	Red-Slate			
20	Slate-Red			
21	Black-Blue			
22	Blue-Black			
23	Black-Orange			
24	Orange-Black			
25	Black-Green			
26	Green-Black			
27	Black-Brown			
28	Brown-Black			
29	Black-Slate			
30	Slate-Black			
31	Yellow-Blue			
32	Blue-Yellow			
33	Yellow-Orange			
34	Orange-Yellow			
35	Yellow-Green			
36	Green-Yellow			
37	Yellow-Brown			
38	Brown-Yellow			
39	Yellow-Slate	Tip	Green	CO
40	Slate-Yellow	Ring	Red	
41	Violet-Blue	Tip	Green	CO
42	Blue-Violet	Ring	Red	
43	Violet-Orange	Tip	Green	CO
44	Orange-Violet	Ring	Red	
45	Violet-Green			
46	Green-Violet			
47	Violet-Brown			
48	Brown-Violet			
49	Violet-Slate			
50	Slate-Violet			

Worksheet

				IVX C-Class Cabinet	
Term.	**Wire color**	**Signal**	**RJ11**	**Pt. Crd. 1**	**Pt. Crd. 2**
1	White-Blue	Data+	Green	Digital 100	Digital 106
2	Blue-White	Data-	Red		
3	White-Orange	Data+	Green	Digital 101	Digital 107
4	Orange-White	Data-	Red		
5	White-Green	Data+	Green	Digital 102	Digital 108
6	Green-White	Data-	Red		
7	White-Brown	Data+	Green	Digital 103	Digital 109
8	Brown-White	Data-	Red		
9	White-Slate	Data+	Green	Digital 104	Digital 110
10	Slate-White	Data-	Red		
11	Red-Blue	Data+	Green	Digital 105	Digital 111
12	Blue-Red	Data-	Red		
13	Red-Orange				
14	Orange-Red				
15	Red-Green				
16	Green-Red				
17	Red-Brown				
18	Brown-Red				
19	Red-Slate				
20	Slate-Red				
21	Black-Blue				
22	Blue-Black				
23	Black-Orange				
24	Orange-Black				
25	Black-Green	Data+/Tip	Green	Analog 112	
26	Green-Black	Data-/Ring	Red		
27	Black-Brown	Data+/Tip	Green	Analog 113	
28	Brown-Black	Data-/Ring	Red		
29	Black-Slate				
30	Slate-Black				
31	Yellow-Blue				
32	Blue-Yellow				
33	Yellow-Orange	OH Page Audio A			
34	Orange-Yellow	OH Page Audio B			
35	Yellow-Green	OH Page Relay Common			
36	Green-Yellow	Relay Normally Open or Relay Normally Closed			
37	Yellow-Brown				
38	Brown-Yellow				
39	Yellow-Slate	Tip	Green	CO	CO
40	Slate-Yellow	Ring	Red		
41	Violet-Blue	Tip	Green	CO	CO
42	Blue-Violet	Ring	Red		
43	Violet-Orange	Tip	Green	CO	CO
44	Orange-Violet	Ring	Red		
45	Violet-Green	Tip	Green		
46	Green-Violet	Ring	Red		
47	Violet-Brown	Tip	Green		
48	Brown-Violet	Ring	Red		
49	Violet-Slate	Tip	Green		
50	Slate-Violet	Ring	Red		

(This page included for pagination purposes only.)

System programming: An introduction

You can program an IVX C-Class system from a 24-Key Digital Feature Phone in the system (while the system is operating).

Read the *C-Class User's Guide* first. Programming features require a clear understanding of **user** interface and application.

Once you've accessed programming mode on a 24-Key Digital Feature Phone, the system will prompt for — and confirm — each keystroke action via voice commands and the display. You program both configuration data and recordings in the same manner.

Programming keys

During programming, the first line of the display will show the current **item** being programmed, and the second line will be the **entry** line. You can enter values as directed by the combination of the voice prompts and display. To enter multiple values, such as a list of extension numbers, separate each value by # (to exit the list, enter # #).

To...	Press ...	What this does
Enter	#	Confirms new or existing entry and advances to next programming step.
Back up (*i.e.*, reverse direction)	*	Backs up to previous prompt without changing its value.
Delete	**HOLD**	Deletes data or recording.
Exit	[Hang up]	Exits programming mode and removes extension from DND.
Help	**HELP**	Provides more detailed instructions during programming.
Select/scroll	▼ *(left-side scroll key)*	• During entry of a value, backs up. • If a list is present (">" is displayed), scrolls to left.
	▲ *(right-side scroll key)*	• Selects from options presented. • If a list is present (">" is displayed), scrolls to right. • Inserts a space during entry of a name.

Note: Either **<** or **>** in the display indicates that additional choices or values are available by pressing a corresponding scroll key (▼or ▲).

Entering alphanumeric characters

You enter names for **extensions, departments, and branch IDs** by pressing the dial pad key that corresponds to the character to be entered. The key's possible entries will change each time the key is pressed, and the display will show this. When the desired character appears on the display, press # to confirm; the cursor will move to the next character position. You may move the cursor left (to correct an entry) by pressing the left scroll key (▼) or move right (to add a space) by pressing the right scroll key (▲).

Key	Options
0	0, - (hyphen), _ (underline)
1	Q, Z, 1, "_" (space)
2	A, B, C, 2
3	D, E, F, 3
4	G, H, I, 4
5	J, K, L, 5
6	M, N, O, 6

Key	Options
7	P, R, S, 7
8	T, U, V, 8
9	W, X,Y, 9
▼ (left scroll key)	Backs up and erases
▲ (right scroll key)	Adds a space
#	[Enter]
# #	Ends the name

Example: To enter a *B*, press **2** twice (the possible options to scroll through are **A, B, C** and **2**). When **B** is displayed, press # to confirm; the cursor will move to the next character to be entered. To complete the name, press # #.

System fixed numbering plan

Numbers	Function
0	Operator
1–6	CO lines
100-111	Digital extensions
112-113	Analog extensions
199	Overhead paging port
290–299	Department numbers
300–309	Guest/info mailboxes
500	Broadcast mailbox
520-529	Cascade mailboxes
560–580	Feature codes
600–699	System speed-dial

System programming overview: Programming menu

1 System parameters
- 11 Initialize
- 12 Installer password
- 13 Administrator password
- 14 System clock
  - 141 Set time/date
  - 142 Automatic time setting
- 15 System timing parameters
  - 151 Flash duration
  - 152 Transfer forward timer
  - 153 Recall timers
- 16 System feature parameters
  - 161 Recording alert tone
  - 162 Connect tone
  - 163 Station feature set activation *(Generation II only)*
  - 165 Auto attendant parameters
  - 166 CO parameters
  - 167 Voice mail parameters
- 17 System speed-dial
- 18 **Maintenance/SMDR** serial port baud rate

2 CO line programming
- 21 Line programming
- 22 Translation table programming
  - 221 Centrex/PBX access code
  - 222 Toll restriction exception tables
- 23 Line parameters
  - 231 Line receive volume
  - 232 Analog line disconnect
- 24 Caller ID programming

3 Extension programming
- 31 Extension definition and routing
- 32 Extension feature authorization
- 33 Department programming
- 35 Extension button mapping

4 Auto attendant programming
- 41 Auto attendant branch programming
- 42 Announce extension number
- 43 Automatic day/night mode table

5 Voice mail programming
- 53 Guest/info mailboxes
- 55 Message notification options
- 56 Cascade paging mailboxes

6 Recording
- 61 Record system prompts
- 62 Record directory names
- 63 MOH programming
  - 631 MOH source
  - 632 Record MOH
  - 633 MOH volume

Accessing programming

You may program from **any** 24-Key Digital Feature Phone in the system:

1. Press **PROG/HELP**.
   The normal **station** programming menu prompt will begin to play. Press **HOLD** to stop the prompt.
2. Enter the Installer password followed by **#** (the default password is 789). **You are now in programming mode** (during this time, the extension will be automatically placed in DND).
3. Follow the **system** programming menu to program as you wish; and, when finished, hang up.

> **Note:** The system will automatically exit programming mode after 10 minutes of inactivity.

> **Example:** If your Installer password is *864*, **enter** programming mode by pressing **PROG/HELP HOLD 8 6 4 #**. (To **exit** programming mode, hang up.)

(This page included for pagination purposes only.)

Function 1: System parameters

Function 11: Initialize

This function will return all components and software to their initial state. Initialization will erase all data and custom recordings.

> **Important:** Always initialize the system before initial programming for a new installation.
> You must confirm the command to initialize, when prompted, by entering the Installer password.
> Be sure to set the time and date (Function 14) before initializing.

System initialization will take approximately one minute to complete. When initialization is completed, the phone's display will return to the idle state. **You must then re-access programming mode** by following the steps described earlier (see page C.3).

Functions 12 and 13: Installer and Administrator passwords

These functions will display the existing password and prompt for entry of a new password. The passwords can be 2–8 digits long, followed by #. **The Installer can change either the Installer or Administrator Password. Only those functions listed in the *Administrator's Manual* can be programmed via the Administrator password.** The default passwords are:

Installer password (Function 12) = **7 8 9**

Administrator password (Function 13) = **4 5 6**

> **Notes:** Be sure to write down the new passwords, store them in a safe place and give the new Administrator's password to the Administrator.

Accessing user station programming

Should a user forget his password or if an employee leaves the organization, this feature allows the Installer or Administrator to enter a user's station programming and operate within it as if he were the user. From the user's station, enter the **Installer** or **Administrator** password when the system prompts for the **user** password.

> **Example:** From station 105, entering **7 8 9 #** or **4 5 6 #** instead of the user password (**1 0 5 #**) will enter the station's user programming. (Default passwords shown for this example).

Function 14: System clock

Function 141: Set time/date

1. Enter a new time in a **twelve**-hour format.

> **Example:** Enter **1 2 3 3** for *12:33*, or **3 1 5** for *3:15* (note that you need **no** leading zero for the time).

2. Select AM or PM by pressing a scroll key (either ▼or ▲).

3. Enter a new date in an **eight-digit** format, **including** leading zeroes.

> **Example:** Enter **0 7 0 4 2 0 0 3** for July 4, 2003 (note that leading zeroes **are** required here, unlike in Step 1).

4. Press # to finish the entry.

> **Note:** A built-in battery maintains the correct time and date, even in the event of a power loss.

Function 142: Automatic time setting

1. Synchronize with Caller ID

This function, when enabled, synchronizes the real-time clock with Caller ID (CID) messaging: call processing compares the time of a CID message to the system real-time clock and, if the difference is more than two minutes, resets the real-time clock to match the time (hours and minutes) of the CID message. The system will analyze each such message (or — if it receives more than four calls with CID information within a one-minute period — as is needed). Select *ENABLE* or *DISABLE* by pressing a scroll key (either ▼or ▲). Choosing *ENABLE* will allow the CID data to update the time and date.
Default: Enabled.

2. Adjust for Daylight Savings Time

This function, when enabled, causes the real-time clock to adjust itself automatically for Daylight Savings Time (DST). Select *AUTO* or *DISABLE* for DST by pressing a scroll key (either ▼or ▲). Choosing *DISABLE* is best for those areas that don't observe DST.
Default: Disabled.

Function 15: System timing parameters

Function 151: Flash hook duration

This sets the time (in seconds) that a flash hook will be sent on the telephone line when the **FLASH** key is pressed. The default setting of **1.5** will cause disconnect and fresh dial tone from the CO.
Range: 0.2–2.0. **Default:** 1.5.

Function 152: Transfer forward timer

This sets the number of times a transferred call will ring before following the day/night routing for the extension or department.
Range: 1–9 rings. **Default:** 3.

Function 153: Hold recall timer

This is the amount of time in seconds that a call will remain on hold before recalling to the extension that placed the call on hold.
Range: 5–960 seconds.**Default:** 60.

Function 157: Ring timeout

(Generation II only.) This is the amount of time before an unanswered incoming call is disconnected.
Range: 1–10 minutes. **Default:** 4 minutes.

Function 16: System feature parameters

Function 161: Recording alert tone

This sets whether the system plays a short beep tone every 15 seconds during a call recording, indicating to both parties that a recording is in progress.
Default: Disabled (the beep doesn't play).

> **Important:** IN **MOST** JURISDICTIONS, IT IS PERMISSIBLE TO RECORD A CONVERSATION IF ONE OF THE TWO PARTIES IS AWARE THAT IT IS BEING RECORDED. HOWEVER, ESI TAKES **NO** RESPONSIBILITY AS TO ITS LEGALITY IN **ALL** JURISDICTIONS. IT IS THE RESPONSIBILITY OF THE INSTALLING COMPANY AND THE END USER TO DETERMINE AND FOLLOW THE APPLICABLE STATE AND LOCAL LAWS REGARDING RECORDING OF CONVERSATIONS.

Function 162: Connect tone

This sets whether the system plays a system connect tone (two short beeps a user hears when a station answers).

Default: Enabled (the beep plays).

Function 163: Feature set activation

(Generation II only.)

Field 1: Group listen

With this feature **disabled**: if a station user presses **SPEAKER** while on a call, the Feature Phone immediately turns off the handset and switches to hands-free mode.

If enabled, the group listen feature is available system-wide. If disabled, it is no longer available.

Default: Enabled.

Field 2: Privacy release

With this feature **enabled**: if a station user presses a CO line key that is in use (lit red), the user will be immediately conferenced with the call in progress on that line. With this feature **disabled**, pressing an in-use CO line key has no effect.

Default: Disabled.

Function 165: Auto attendant parameters

Field 1: Auto attendant inter-digit timer

Make this setting higher if callers complain that they don't have enough time to dial before either the system sends them to the wrong destination or they hear "Your entry was not valid"; make it lower if they say it pauses too long after they dial digits.
This sets the time after the first digits has been entered and before the entered number is accepted as being complete (time between each digit dialed). Expressed in 1/100s of seconds.

Range: 40–1000 (*i.e.*, 400 ms to 10 seconds). **Default:** 200 (*i.e.*, 2 seconds)

Field 2: Auto attendant no-response timer

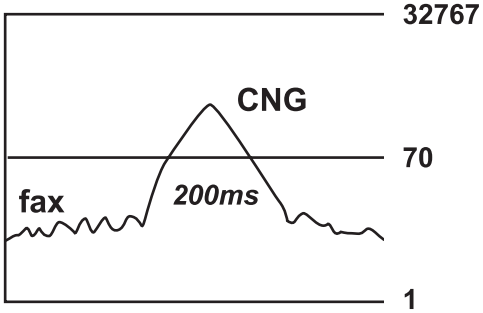
Adjust if the time after the playing of the auto attendant greeting is too long (or too short) before the system follows the no-response (call-forward) destination of a menu or directory.
Sets auto attendant's no-response timeout time. This is how long the auto attendant waits until after the menu plays all options. Expressed in 1/100s of seconds.

Range: 50–6000 (*i.e.*, 500 ms to 1 minute). **Default**: 300 (*i.e.*, 3 seconds).

Field 3: Fax energy level (CNG tone)

Adjust this level if fax calls aren't routing properly when the auto attendant answers. Increasing (or decreasing) this field causes the system to look for more (or less) CNG tone to detect whether it's a valid tone. This is a threshold level, so setting level too low may cause the system to route **all** calls to the fax port. The energy level of a fax signal must exceed this setting for more than 200 ms.

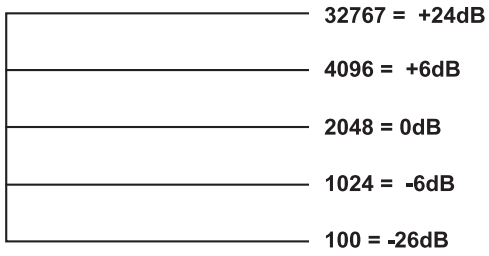
Range: 1–32767. **Default:** 70.



Function 166: CO parameters

Field 1: CO-to-CO conference gain

Adjusts the volume level on CO lines when in a conference call. Increasing this level to a high setting can cause excessive noise or feedback on conference calls. This is a threshold gain level. Doubling or halving the current setting is in 6dB increments.



Range: 100–32767. **Default:** 2048.

> **Warning:** Adjusting field 1 while calls are in progress may result in temporary loss of audio.

Field 2: CO playback gain

Adjusts the volume level the system uses to play back recordings, prompts or messages to a CO line. If this value is set too low, callers into the system may not be able to hear the greeting of a mailbox or the auto attendant when either answers the call. *6* = 0dB; going up or down from there is in 3dB increments.

Range: 1–12. **Default:** 6.

Field 3: Trunk-to-trunk CO gain

Adjust this if callers in a trunk-to-trunk connection — either through the “reach-me” feature, manual connection or auto attendant — are unable to hear or have excessive noise or feedback. *10* = 0 dB; going up or down from there is in 3dB increments.

Range: 1–12. **Default:** 8.

> **Warning:** Adjusting field 3 while calls are in progress may result in temporary loss of audio.

Field 4: Delay before connection “beep-beep”

Adjust this if connection tones are played either too soon or too late after the system answers a CO or intercom call. Sets the amount of time before the connection “beep-beep” is started. Expressed in 1/100s of seconds.

Range: 10–100 (*i.e.*, 100 ms to 1 second). **Default:** 20 (*i.e.*, 200 ms).

Field 5: Caller ID gain

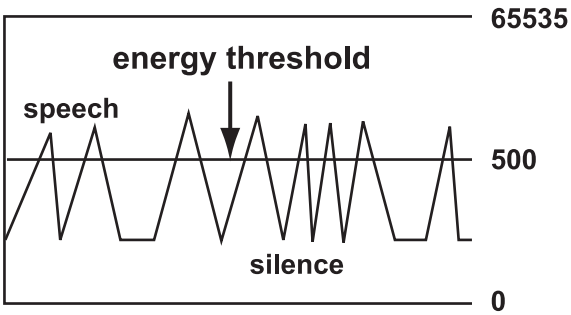
Adjust this level if Caller ID information isn’t being displayed. Setting this field tells the system how much CID signal it needs to determine whether the signal is valid CID. This is a value set in the DSP and is similar to the fax energy level (see Function 165, field 4, page D.4).

Range: 1–32767. **Default:** 20000.

> **Warning:** Adjusting field 5 while calls are in progress may result in temporary loss of audio.

Function 167: Voice mail parameters

Field 1: Energy threshold



Adjust this downward if (a.) callers in a mailbox, on a conference call or in the auto attendant are being disconnected and/or (b.) messages in a mailbox are incomplete. Adjust this upward if mailboxes are storing messages with long periods of silence. This sets the value used to detect energy received by the system on any port. Lowering this value means less energy will be required to stay connected. Energy below this level is treated as silence.

Range: 0–65535. **Default:** 500.

Field 2: Recording silence value

This sets how much consecutive silence can be recorded in a mailbox before it stops and plays the “end of recording” prompt (537). Expressed in 1/100s of seconds.

Range: 200–3000 (2 to 30 seconds). **Default:** 600 (6.0 seconds).

Field 3: Maximum message length

Sets the maximum message length. Expressed in minutes.

Range: 1–30. **Default:** 10.

Field 4: Page glare detection

Enables or disables the ignoring of page glare when using pager notification. When this is set to **1**, the system will go off-hook and send phone or pager strings regardless of dialtone detection. Enable this field if one or both of the following occur:

- CO lines are not releasing immediately after a pager notification.
- “Phantom” incoming calls (no caller and no Caller ID) are occurring.

Range: 1 (enabled) or 2 (disabled). **Default:** 2 (disabled).

Field 5: Maximum messages in Recycle Bin

Sets the maximum number of messages in the Message Recycle Bin.
This is a system-wide setting.

Range: 2–40. **Default:** 2.

Function 17: System speed-dial

Up to 100 system speed-dial names and associated numbers can be stored, in location numbers 600–699, for access by any station. A user can initiate a system speed-dial by dialing the speed-dial location number or by accessing the name through the Esi-Dex feature. In Function 32, access to system speed-dial can be denied to individual stations (see page F.4).

Note: System speed-dialing overrides toll restrictions (Function 32, page F.4).

1. Enter the 3-digit location number to program,
2. Enter a **ten-character** name (see "Entering alphanumeric characters," page C.2).
3. Enter the number to be dialed (including the line group 9, 8, or 7). Press the left scroll key (▼) to delete any character or digit entered in error. Here's an example:

1. Speed-dial #	2. Name	3. Number
601	AUTO RENTL	915552221212

The number dialed in Step 3 can be up to 30 digits long **including** the following special codes:

Code	What it produces
#	# DTMF tone
∗	∗ DTMF tone
F	Flash hook
P	2-second pause

To insert a special code, press the right scroll key (▲) to select the desired special code: **# , ∗ , F** or **P**.

Press # to confirm the inserted character and continue. Press **# #** to complete the entry.

Use the down arrow key (▲) to backspace.

Once the number is saved you can use the scroll keys to move back and forth to view the number. To edit the number, you must delete it and enter the correct number.

Example: To create a System Speed Dial number that dials *9*, then *972-555-5644*, then pauses for four seconds and finally dials #*104*, enter:

9 9 7 2 5 5 5 5 6 4 4 (then scroll to) **P #** (then scroll to) **P #** (then scroll to) **# #** **1 0 4** #

Deleting a speed-dial number

To delete an entire speed-dial number and name, delete the location number (**6 X X**) by pressing **HOLD** or the left scroll key (▼) during Step 1 in the speed-dialing procedure described above.

Function 18: SMDR serial port baud rate

The **Maintenance/SMDR** serial port on the system cabinet provides SMDR data. Real-time SMDR call records are continuously output to the SMDR port.

1. The system will prompt you for the *baud rate*. You can change this rate by pressing the scroll keys (▼ and ▲).
   Options: 300, 1200, 2400, 4800, 9600, 19200 or 38400 bps.
   Default: 38400.
2. Select the SMDR format, *STANDARD* or *CSV*, by pressing the scroll keys (▼ and ▲).
   Default: *STANDARD*.

Function 2: CO lines

The IVX C-Class system can operate on a station-by-station basis as a PBX or as a combined key/PBX using standard loop start lines. If a station has line keys programmed, the user accesses the lines by pressing one of these keys **or** by dialing **9** (or **8** or **7**). If a station does **not** have line keys programmed, the user **always** accesses CO lines by dialing **9** (or **8** or **7**).

Note: To provide additional visual indication of CO line usage, the 24-Key Digital Feature Phone's idle display will show on/off-hook line status.

Since the system handles call transfer and auto attendant functions efficiently, operating in the PBX mode provides more programmable feature keys for other uses and the opportunity for glare is greatly reduced.

Note: All phone programmable keys default to being unprogrammed (except on extension 100, where the first key defaults as a day/night key). Use *extension button mapping* (Function 35; see page F.6) to assign line keys system-wide. An **individual** station's keys can be reassigned using **PROG/HELP 2** at that station.

Important: Where any **gray shading** ( ) appears in an example, it represents values either **unavailable** to the function or **unused** in the particular example.

Function 21: CO line programming

- The CO lines are numbered 1–6.
- All CO lines are programmed to route callers during the day mode and then can be programmed to route callers differently during the night mode. The display will indicate *D* (for *day*) or *N* (for *night*) to show which mode is currently being programmed. Lines that are to be programmed alike can be *grouped* to simplify programming.

Example: Here is a completed Programming Worksheet for incoming calls on Line 1 to ring live to extension 100 but finally answered by the Main Greeting after 9 rings. **(The step numbers correspond to the explanation that begins on the next page.)**

1. CO	2. Out	3. Ring 1	Ring 3	Ring 5	Ring 9
1	9	X100	X100	X100	ID1

Do the following to program the CO lines.

1. Choose CO lines to program

During this step, you use the first 6 programmable keys to represent CO lines. Select lines to be programmed by pressing one or more of the programmable keys.

The first six DSS LEDs glow red. Select the COs to program alike and press the # key to confirm. The LEDs will now glow green.

2. Assign outbound CO line groups

CO lines can be grouped for outbound, pooled access into one of three line groups: 9, 8, or 7.

> **Note:** A line can only be in one line group or designated as a private line.

Select the line group and press the # key to confirm. Outgoing calls will be assigned from the highest CO to the lowest available. Or, to **delete** the line group number (whereupon the line can only **receive** inbound CO line calls), press **HOLD**.

Default: 9 (i.e., all CO lines in Group 9).

Private line

You can designate a line as a **private line** by entering an extension number, instead of a line group number, in this step. The line is then programmed as outlined in the following explanation, giving the private line great flexibility for handling call routing.

> **Note:** A private line can be assigned only to a Digital Feature Phone. A line key must be programmed on the phone to access the line for outgoing calls. However, a status key can be programmed on another phone to display the busy/idle condition of a private line.

3. Assign answer rings

Lines can be directed to be answered at up to 10 extensions, a department, a mailbox or an auto attendant branch ID (see “Auto attendant programming,” page G.1). The destination can be set to add or drop extensions, departments, mailboxes or ID branches if ringing continues due to no answer.

Example: First ring — Line 1 will ring at the operator's extension.
Third ring — Extensions 112 and 113 are added.
Fifth ring — The operator's station is dropped from ringing.
Ninth ring — The call will be answered by the auto attendant.

CO	Out	Ring 1	Ring 3	Ring 5	Ring 9
1	9	100	100 112 113	112 113	ID1

Once you have programmed all desired CO lines for day mode, repeat the programming steps for all desired CO lines for night mode. **Default:** Answer on ring 1 with ID1 (main greeting) in both day and night modes.

(Continued)

Example: To have after hours calls directed to a general delivery mailbox, program the system as follows. During Night Mode, Line 1 (and other lines to be programmed alike) will be answered immediately by MB301 (a Guest Mailbox set up for general delivery). The Personal Greeting for MB301 might be:

"Hello, thank you for calling ABC Company. Our offices are closed. Our normal business hours are 8 to 5 Monday through Friday. Please leave a message at the tone and your call will be returned when we resume normal business hours."

A Virtual Mailbox Key programmed at the operator's phone will allow easy pick-up of calls left during the night.

Night mode

CO	Out	Ring 1	Ring 3	Ring 5	Ring 9
1	9	MB301			

Note: CO line groups aren't programmable from night mode.

Function 22: Access codes/toll restriction

Function 221: Centrex/PBX access code

If the system is to be used behind Centrex or another PBX, you must list the **dial access code** used to gain access to a CO line from Centrex or the PBX, so that toll restriction can ignore the access code digit(s). Users must dial the access code after accessing a line by **either**:

(a.) Dialing **9**, **8**, **or 7**
or
(b.) Pressing a line key (if programmed)

The access code can be one or two digits — *e. g.,* 9, 81, *etc.* — and must be programmed for each line group.

Default: 0.

Note: You must set the flash duration in Function 151 (page D.3) for the requirements of the host switch.

Function 222: Toll restriction exception tables

The system's toll restriction is based on outbound calls being defined as either *toll calls* or *non-toll calls*.

Toll calls — All "1+" or "1010" calls, information, operator, international, "1-900" and "976" calls.

Non-toll calls — All seven and 10-digit local calls, and all "1-800" or "1-888" calls.

As part of extension feature authorization (Function 32; see page F.3), each station is programmed to be allowed or denied toll calls by following the fixed tables when they are programmed with an "N," as well as following the allow and deny exception tables (*i.e.*, overriding the fixed tables). All stations that have been assigned access to a line group can make non-toll calls.

(Continued)

To program the allow and deny exception tables:

1. Enter the numbers for either table, separating each number by #.

> **Example:** For "1-900," enter **1 9 0 0 #.**

> **Note:** Press **MUTE/DND** to insert a **"**wild card" digit. A "wild card" digit is needed only when followed by more numbers; *e.g.*, to allow/deny *1-555*, enter just **1 5 5 5 #** — however, to allow/deny all "1+" area codes and *555*, enter **1 X X X 5 5 5 #** (where ***X*** indicates a pressing of **MUTE/DND**).

> **Warning:** Do **not** include IVX line access codes (*9, 8*, or 7) in **any** of the toll restriction entries.

2. After the last number, enter **# #** to end the list. The IVX C-Class system will apply the numbers you enter to their most significant digit.

> **Example:** Entering **1 5 0 5** into the deny exception table tells IVX to deny **all** "1+" calls to area code 505. **But** entering **1 5 0 5 5 5 5 8 7 8 7** into the table tells IVX to deny "1+" calls **specifically** to (505) 555-8787 while **allowing** *other* "1+505" calls.

To allow information calls, enter into the allow table: *411, 1411, 5551212, 1XXX5551212* (where *X* is a wild card digit, entered by using **MUTE/DND**).
Default: None.

Function 23: CO line parameters

Function 231: System CO line receive volume

Many variables can affect the volume of the CO lines. Weak lines can reduce the IVX C-Class system's ability to properly detect DTMF dialed by an outside caller. Conversely, **"**hot**"** lines can cause DTMF distortion and/or increase the opportunity for message talk-off (*i. e.,* messages being cut off before completion). Ideally, a message recorded from an outside call has the same playback volume as the system prompts.

This function can be used to adjust the gain of the receive volume of the CO lines system-wide.

Range: 0–12 (lowest to highest gain, respectively). **Default:** 10.

Function 232: Line disconnect

You can set the lines to detect the open loop interval (if available from the CO) and disconnect more quickly. This will also allow the system to:

Drop abandoned calls from hold.

Reduce the opportunity for abandoned calls to be transferred by the auto attendant

Reduce the possibility that abandoned calls could create messages that are either silent or contain CO-generated tones.

Since open loop intervals generated by the CO may vary in duration, use this function to program IVX to less than or equal to the CO open loop interval.

If this programmed value is set unnecessarily low, the IVX C-Class system may falsely interpret static or a momentary loop break as an open loop and disconnect a caller on hold or in the process of leaving a message. If this value is set too high, the IVX C-Class system may not detect a valid open loop signal for fastest call processing.

Range: 1–255 (10–2,550 ms) (or **0** to turn off open loop detect). **Default:** 6 (60ms).

Function 24: Caller ID

This function activates the Caller ID capability in the IVX C-Class system — **if** the customer has ordered Caller ID service from the Telco. The IVX C-Class system will display the caller's name (or "OUT-OF-AREA," etc.) for incoming calls or messages (or show the Caller ID number if the CO only provides a number).
Default: Disabled.

Esi-Dex[1] and auto callback — This is accomplished by pressing **FLASH/RDL** or **ESI-DEX** either during message playback or after an Esi-Dex search. Caller ID numbers received from the CO are 10 digits long (and include the area codes for local calls). **In auto callback, the IVX C-Class system assumes all calls are to be long-distance and will automatically add a "1" prefix to the 10 digits to be dialed.**

A table of local area codes can be programmed to indicate that calls to those area codes are to be dialed as local calls. Select one of the following two types of **local** dialing for each area code entered:

- **Local 7** — Local calls that can be dialed only as seven-digit numbers (the IVX C-Class system strips the area code before dialing and will **not** add a "1" prefix).
- **Local 10** — Local calls that can be dialed only as 10-digit numbers (the IVX C-Class system will **not** add a "1" prefix).

For an area code that can be called as a long-distance number (with a "1" prefix) **and** as a local number (10 digits without a prefix), decide which case is the more prevalent and then add to or exclude from the area codes exception list accordingly. Thus, some of these calls must be made manually.

> **Note:** Since the Caller ID information is transmitted from the CO during the silence between the first and second rings, enabling this feature will delay the answer of inbound calls until the second ring

.

[1] Esi-Dex is not available on the 12-Key Digital Feature Phone.

(This page included for pagination purposes only.)

Function 3: Extension programming

This section provides programming for extensions and department groups.

> **Important:** Where any **gray shading** (▒) appears in an example, it represents values either **unavailable** to the function or **unused** in the particular example.

Function 31: Extension definition and routing

Extensions can be either:

- **Digital Feature Phone** extensions (*DIGITAL* in the chart below and succeeding charts)
- **Analog** ports (*PHONE, FAX*, *MODEM*, *RINGER* or *DOOR* in the same charts)

Digital extensions may be 100–111; analog extensions are 112-113.

Digital Feature Phones

Here's an example of the portion of a completed programming worksheet for Digital Feature Phones.

1. Ext.	2. Type	3. Name	4. CO	5. CF day	6. CF night	7. Page zone	8. Ext.
0		Operator		X100	X100		X100
100	DIGITAL	Jane	9	MB100	MB100	0,1,2,3	
101	DIGITAL	Roger	9	MB101	MB101	0	
102	DIGITAL	Sally	9,8	MB102	MB102	0	
112	EXT	Roger 2	9	MB112	MB112		
113	FAX	FAX					

> **Note:** 100 defaults as OPR (when a user dials **0**); 101 is an example of system default.

Each programming step for Digital Feature Phone extensions is defined as follows:

1. **Extension number** — Extension numbers range from 100 to the highest number of ports installed and must match the port numbers as connected to the system.
2. **Type** — Based on the port card installed, the IVX 20c assigns the port as *digital*.[1]
3. **Extension name** — Used for the display, reports, and as a programming aid. The name's length can be no longer than 10 characters (See "Entering alphanumeric characters," page C.2).
   Default: The extension number.
4. **CO line group** — Assigns the extension's ability to access one **or more** CO line groups (9, 8, and 7).
   Default: 9.
5. **Call forward busy/no answer for day mode** — The extension is set to call forward busy/no answer to the extension (or department) mailbox for day mode. This option is set and cannot be changed with the exception of extension 0.
6. **Call forward busy/no answer for night mode** — Same as previous item, except night mode.

(Continued)

[1] For programming of analog ports, see pages F.2–F.3.

7. **Extension page zone assignment** — List the page zones (1,2,3) that are to be included.
   Default: All-page.
   The overhead paging port (extension 199) can be paged along with other extensions in a zone by including the desired page zone for extension 199.
   All digital phone extensions are included in (and cannot be removed from) the all-page zone.
   Analog extensions cannot be included in page zones.
8. **Operator translation** — Extension **0** (Operator) programming requires:
   - Programming call forwarding for day and night mode
   - Entering the extension number to which calls are to be directed when someone dials **0**.

   Default: 100.

> **Notes:** If you want more than one extension to ring when someone dials **0**, you must build a department in Function 33 (see page F.5) and enter the department in column 8 on page F.1. If operator translation is directed to a department or branch ID, and a call to the operator is not answered, operator call forwarding takes precedence.

Analog ports

The last 2 station ports can be programmed only as follows:

1. Ext.	2. Type	3. Name	4. CO
0		Operator	
100	DIGITAL	Jane	9
101	DIGITAL	Roger	9
102	DIGITAL	Sally	9,8
112	PHONE/FAX/MODEM/RINGER/DOOR	PHONE/FAX/MODEM/RINGER/DOOR	9
113	PHONE/FAX/MODEM/RINGER/DOOR	PHONE/FAX/MODEM/RINGER/DOOR	9

Here are the steps for programming analog ports:

1. **Phone number** — Analog port extension numbers must be x112 or x113.
2. **Type** — If *ANALOG PORT* is selected, then the ports can further be defined as follows; the words in parentheses **(EXAMPLE)** indicate what the display will show in each case:
   - **Phone (EXT)** — Designed to provide for standard 2500 type phones. See *the IVX C-Class User's Guide* for complete description of the capabilities.
   - **Common ringer (RINGER)** — Connected via a tip and ring pair; will apply ring voltage whenever a line rings in night mode or when a call is directed to it (transfer, call forwarding, CO ring, etc.).
   - **Fax (FAX)** — If the Auto Attendant detects a fax tone, it will automatically forward the tone to the analog port programmed as FAX.
   - **Modem (MODEM)** — Incoming calls for a modem can be manually transferred to the modem extension; also, the modem can automatically generate outbound calls. Maximum connect speed through the PBX is 9600 bps.
   - **Door phone (DOOR)** — A telephone connected to this port will automatically dial the programmed ring down extension number whenever the set is taken off-hook.

3. **Extension name** — This is used for the display, reports, and as a programming aid. The maximum length is 10 characters (See "Entering alphanumeric characters," page C.2).
   Default: The type selected.

   Note: The name for the ringer and door must be changed in Function 32.

4. **CO line/ring down** — For fax, modem, or phone, select the desired line group — 9, 8, or 7.

   Default: 9.

   If *door phone* is selected, an extension number is entered as a ring down destination.
   Default: Extension 100.

   No dial tone is presented for *common ringer.*

Overhead paging interface

You can connect a dry-contact overhead paging device to the system through the first port card's 66 block. The overhead paging port's access is fixed as extension 199 for programming purposes. The user can access it by:

(a.) Dialing **1 9 9**
or
(b.) Programming *199* as a programmable key and/or including *199* in one or more page zones.

Note: DTMF can be transmitted to the overhead paging port after access, allowing for zone overhead paging, if the paging unit supports zone paging.

1. Ext.	Type	Name	CO	2. Page zone
199				1

Dry contact control

The manner in which the dry contact pair is punched down on the 66 block sets the pair as either **normally open** (sending a page to the port will close the contacts) or **normally closed** (sending a page to the port will open the contacts). See the "Hardware installation" section (beginning on page B.5).

Function 32: Extension feature authorization

The Installer or Administrator can allow or deny many extension features on an extension-by-extension basis. A User, however, can only program and use allowed features (by using a combination of voice and display prompts) from his/her phone.

Below is an example of a completed programming worksheet. The programming sequence is:

1. Ext.	2. Name	3. Rec.[1]	4. Toll allow	5. Sys. spd. dial	6. Ext. fwdg.	7. Ext Fwd to toll #	8. Trunk-to-trunk
XXX	Default	Y	Y	Y	N	N	N
100	Jane	Y	Y	Y	N	N	N
101	Roger	Y	Y	Y	N	N	N
102	Sally	N	Y	Y	N	N	N
112	Bill		Y	Y	N	N	N

[1] Not available on 12-Key Feature Phone.

The programming steps are:

1. **Extension number** — Enter the extension number to program.
2. **Extension name** — Name the extension (if not previously named in Function 31 [see page F.1]).

For each of the following features, press a scroll key (▼or ▲) to select *YES* or *NO*.

3. **Live recording feature** — If enabled, will allow the user to record conversations on a 24-Key Feature Phone.
4. **Toll restriction** — "YES" allows the user to place toll calls. If you select "NO," the user can make only either non-toll calls or calls to numbers listed in the allow exception table.
5. **System speed-dial** — "YES" allows the user to access and place system speed-dial calls.
6. **External forwarding** — Allows the station user to enable the off-premises "reach-me" feature. The off-premises reach-me feature allows a caller that has been forwarded to voice mailbox to be transferred to an outside number. See the *IVX C-Class User's Guide* for more information about the Off-Premises reach-me feature.

   Default: Disabled.
7. **External forwarding** — This feature is used in conjunction with external forwarding. When enabled, this feature lets the user program a long-distance number for external call forwarding.
8. **Trunk-to-trunk** — If enabled, this feature allows manual trunk-to-trunk transfers. While connected to an outside call, the user can press **TRANSFER**, dial an offsite number and then complete the trunk-to-trunk transfer by simply hanging up. Both outside parties are then connected.

Note:	After the system dials the external forwarding number, a prompt will be played saying, *"You are receiving a forwarded call. Press any key to accept."* This prompt will play continuously for 30 seconds. If the forwarded call is answered and the called party dials a digit, the forwarded call will be connected to the called party. If no digit is dialed, the caller is automatically forwarded to voice mail. While the two lines (trunks) are connected, the system constantly monitors the lines for open loop conditions (hang-up). If an open loop is detected on either line, the call is disconnected. The system also monitors for voice activity on the connected lines. If voice is no longer detected, the call is disconnected. Finally, if both lines are connected for more than 60 minutes[1], the call will be disconnected.

[1] The default timer can be made longer or shorter.

Function 33: Department programming

You can create up to 10 **departments** (or "hunt groups"), each with a maximum of 14 extensions. You also can assign an extension to more than one department. Department numbers range 290–299.

Department hunting methods

You can designate a department to be rung in one of the following methods:

- **In Order** — Calls will ring each phone in the order listed. If all are busy or none answer, the call will call forward as programmed here.
- **All** — Calls will ring all listed phones at the same time. If no extension answers or all are busy, the call will call forward as programmed as part of this function. This is the only department available on the C-Class with Integrated Answering Machine.
- **UCD** — Calls will be rotated evenly throughout the listed extensions. If none answer or all are busy, the call will call forward as programmed here.

Procedure

Here's an example of a completed programming worksheet:

1. Ext.	2. Name	3. Type	4. CF day	5. CF night	6. List:
290	Sales	In order	101	103	101, 102, 103

Here are the programming steps.

1. **Department number** — Range is 290–299.
2. **Name** — Used for the display, reports, and as a programming aid. Length can be up to 10 characters (See "Entering alphanumeric characters," page C.2).
   Default: The department number.
3. **Type** — Selected from one of the three possible types (*all, in order, UCD)*.
   Can be changed later without affecting its other programmed values.
   Default: In order.
4. **and 5. Call forward busy/no answer** — The department can be set to call forward busy/no answer (for all extensions in the department) to an extension, another department, a mailbox or a branch ID for day mode and differently for night mode. The department can have its own mailbox for pickup by members knowing the password or forwarded to any mailbox type including guest.
   Calls routed to an extension via a department will follow the **department's** call forwarding. While calls transferred to the extension will follow the **extension's** call forwarding as programmed in Function 31 (see page F.1).
   Default: X100.
6. **Department list** — Enter the extension numbers that are assigned to this department. To delete an extension number from a list, press **HOLD**. Please note that **the order that the extension numbers are entered will dictate the order called when the department selected is "in order."**

(Continued.)

Example: Here is a portion of a completed Programming Worksheet for Department programming. Department 290 was created to have calls directed to it to first ring 104, then, if busy/no answer, 110, and then 112. If all are busy or do not answer, the call will forward to the operator if in day mode — or, if in night mode, to guest mailbox 300 for retrieval in the morning. Department 291 rotates calls between the two extensions listed; if both are busy/no answer, calls go to the service manager (X105) — or, if in night mode, to Guest Mailbox 301, which has been set to page the tech on-call.

1. Ext.	2. Name	3. Type	4. CF day	5. CF night	6. List:
290	SALES	IN ORDER	X0	MB300	104, 111, 112
291	SERVICE	UCD	X105	MB301	101, 102

Function 35: Extension button mapping

By default, the programmable feature keys' initial state is "not programmed" (except in the case of station 100, on which the upper left key is a day/night key). Use this function to change the programmable feature keys **system-wide.** Users can later change the programmable feature key positions for **their** stations as part of station programming.

Important: Future, system-wide changes made later here by the Installer will overwrite **any** station user programming.

When prompted, press the desired programmable feature key location, then enter the appropriate digits on the dial pad and confirm by again pressing the same programmable feature key.

To determine how a programmable feature key is currently programmed, press the key, note how it is programmed, and press the key again.

The keys can be programmed as follows:

CO line key

If the dialed digits are 1–6, the key will serve as a CO line key.

Note: Removing the line key appearances will set the station(s) to operate as a PBX with line access by dialing **9** (or **8** or **7**).

Station key

If the digits entered constitute a three-digit extension number (or department, guest mailbox, etc.), the key will become a station key providing the appropriate lamp information (See "System fixed numbering plan," page C.2).

Speed-dial key

If one enters **9** (or **8** or **7**) plus a phone number, the key will become a speed-dial key for outside calls. Alternatively, the user may enter the system speed-dial bin (600–699).

(Continued)

Feature keys

Feature keys, as listed below, cannot be programmed system-wide but must be programmed for each individual station. Refer to the table for codes available on a 12-Key Feature Phone.

Code	Feature	Available on 12-Key Phone
199	Overhead page	**x**
560	Day/night mode	
564	Headset	
565	Call forward	**x**
565YYY	Call forward to an extension	**x**
568	Message monitor	
569	Background announce	
570	Conference	**x**
571	Personal greeting 1	**x**
572	Personal greeting 2	**x**
573	Personal greeting 3	**x**
575–576	Virtual Answer Keys	
578	Mute/DND	**x**
579	Voice mail	**x**
580	Override ring	

- **Manual day/night mode (Code 560)** — Allows manual setting of the system's mode — day, night, holiday or auto (in auto mode, the system follows the day/night mode tables you have programmed).

> **Note:** You or the Administrator can also change the mode and/or re-record the holiday greeting remotely to handle unexpected closings, such as for inclement weather.

- **Headset key (Code 564)** — Provides for easy connecting to/disconnecting from calls when the user is operating in headset mode. The user presses the key to receive dial tone or to answer a ringing call; he/she then presses the key again to disconnect from the call.
- **Call forward key (Code 565 or 565XXX)** — Toggles call forwarding on and off. If the user always forwards to the same extension, you (or the user) can program a key with both **5 6 5** and the extension number.
- **Message monitor key (Code 568)** — Toggles message monitor mode. (Functionally is same as pressing **PROGRAM 3 6** and following the prompts.)
- **Background announce key (Code 569)** — During call waiting, pressing (and holding down) this key lets the user make a brief, private **background announcement** to the station's earpiece (if the user has enabled the background announce feature).
- **Conference (Code 570) — Serves the same function as the CONF fixed-feature key.**
- **Personal greeting keys (Codes 571–573)** — These provide for easy activation of one or more of the user's personal greetings. Each key's LED will be green for the associated personal greeting that is active. These keys can be used in place of, or in conjunction with, manual activation of the greetings in programming mode.
- **Virtual Answer Keys (Codes 575 and 576)** — Pressing a Virtual Answer Key when the extension is busy causes the system to play a greeting to a caller and then route the caller to a desired destination. (For more details on this feature, see the *IVX C-Class User's Guide*.)
- **Mute/DND (Code 578)** — Serves the same function as the **MUTE/DND** fixed-feature key.
- **Voice mail (Code 579)** — Serves as a **VOICE MAIL** key on 12-Key Digital Feature Phones.
- **Override ring key (Code 580)** — Allows a user to place an outside call (CO or extension) while another call is ringing in on the same station.

> **Note:** To **delete** a programmable feature key, press **HOLD** instead of programming a value.

Virtual Mailbox Key

To create a virtual mailbox key for a user extension, press **VOICE MAIL** ✳ and then enter the extension number.

If the entered digits are a three-digit extension number for a guest, department mailbox, etc., the key will provide for direct transfer to that mailbox, as described above. However if you program **VOICE MAIL** and a three-digit extension or mailbox number, it will become a **Virtual Mailbox Key**, which will indicate message status for the mailbox (the LED will blink red if new messages exist) and provide direct pick-up of the messages.

Private line key

If a private line has been established in CO line programming (see “Private line,” page E.2), that CO line key must appear on that station’s phone to allow outbound access to the line.

Function 4: Auto attendant programming

You can program the auto attendant, in line programming (Function 2; see page E.1), to answer calls immediately, on a delayed-answer basis or not at all (*i.e.,* for live answer at all times). If required, you also can program different main greetings and routing schemes for different combinations of lines. Day/night mode will change the main greeting announcement and affect rerouting of calls during call processing.

Function 41: Auto attendant branch programming

The IVX C-Class system's auto attendant follows a **branch concept**: the caller is routed through a series of branches, ultimately to the extension he wishes to reach. The caller moves from branch to branch by selecting a number or name presented in a branch prompt.

There are three types of branches — *menu, GoTo* and *directory.* Use them to create virtually limitless routing possibilities.

Menu branches (ID1–2)

A **menu branch** includes a prompt that instructs the caller to make a selection from the choices presented such as *"For sales press 1, for service press 2, or for admin press 3."*

When a caller makes a single-digit selection in the menu branch, he/she will then advance to one of its sub-branches — a GoTo branch (routes the caller to a destination; see below) or Directory Branch (for choosing from a list of names; see page G.2).

> **Note:** If a caller makes no selection during the prompt in a menu branch, he will be transferred according to the no-response programming for that branch (see page G.3).

GoTo branches (ID11–17, ID21–27)

A **GoTo branch** transfers the caller to an Extension, Department, Mailbox, Branch ID, or an outside number:

- **GoTo: Dial** — The GoTo Dial Branch automatically blind-transfers the caller to the extension or department number programmed as its destination. If the number listed is a department, the system will follow the programming for the Department as set in Function 33 (see page F.5).
  If the destination extension or department dialed is busy or does not answer, the call will follow call forwarding for the extension as programmed in Function 31 (see page F.1) or the department as programmed in Function 33 (see page F.5).
- **GoTo: Mailbox** — Routes a caller to that mailbox's personal greeting. The mailbox can be a user, or a guest/information mailbox.
- **GoTo: Branch** — Can also be used to jump to any other branch in the auto attendant. It is a good idea to provide a jump as a sub-branch of each menu branch, giving the caller the option either to repeat the menu or exit should he not wish to select any of the choices.

  > **Example:** *"For widget sales, press **1**. For gadget sales, press **2**. Or, to return to the main menu, press **3**."* In this case, the third sub-branch would be a GoTo Branch with ID1 (the main greeting) as its programmed destination.

- **GoTo: Outdial** — The GoTo branch can be used to transfer a caller to an off-premises location, either in conjunction with Centrex lines or Trunk-to-trunk. When you select GoTo, the system will prompt you for one of those two options.

(Continued)

To insert a special code, press the right scroll key (▲) to select the desired special code: **# , ∗ , F** or **P**.

Press # to confirm the inserted character and continue.

Press # # to complete the entry. Use the left scroll key (▼) to backspace.

Once the number is saved, you can use the scroll keys to move back and forth to view the number. To edit the number, you must delete it and enter the correct number.

The codes are:

Code	Produces . . .
#	# DTMF tone
∗	∗ DTMF tone
F	Flash hook
P	Two-second delay
E	The most recently attempted extension number

Example: To create an outdial string that...

- Sends a flash hook
- Dials *9*
- Dials *555-999-5644* (a local 10-digit call, in this example)
- Goes on-hook

... enter **F # 9 5 5 5 9 9 9 5 6 4 4 # #**

Directory branches (ID18, ID28)

A **directory branch** allows the caller to be connected to an employee by selecting his or her name from a list played. Two types of directories are available:

- **All-names (ID18)** — The caller selects the person he wishes to reach from the playback of all recorded names (use this if there are 10 or fewer names in the directory).
- **By-alpha(ID28)**
  - The IVX C-Class system prompts the caller to enter the first letter of the individual's first or last name.
  - The IVX C-Class system then plays the matched names to the caller **in the order recorded.**
  - A second prompt then instructs the caller to press **#** when he/she hears the name of the individual.

Note: The actual recording of the names and alpha "key" entry (if the directory type is by-alpha) will come later in Function 62 (see page I.2). **The directory branch(es) will not be enabled until at least one name has been recorded.** To re-record the directory prompt, "Enter the first letter of the person's first name that you wish to reach," you must enter Function 61 and then record the prompt for the ID number of the directory branch.

Here is the sequence for programming the IVX C-Class auto attendant:

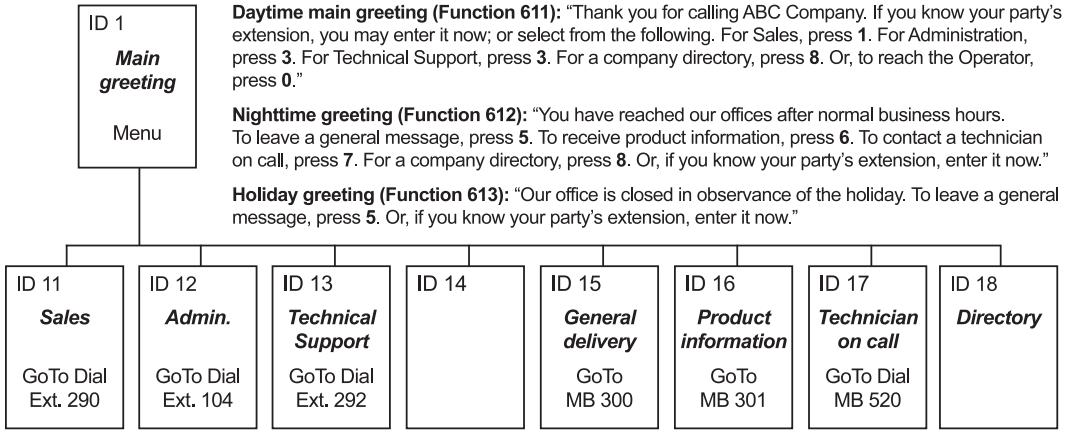
1. **Branch ID** — A numeric designator which indicates its location and relationship to the other branches. There can be up to two levels of branches — the first level being a single digit, the second level being two digits, and so on. The Main Greeting is *ID1* (or 2 if a different greeting for each line is desired); the sub-branch will have that number, plus an additional digit of its own (corresponding to choices given to the caller, shown here in bold): ***11, 12, 13***, etc.
2. **Type** — Select a Menu (Main Greeting ID1 or ID2), GoTo (ID11-17, ID21-27), or Directory Branch (ID18, ID28).

3. **Name** — Enter the name to help identify the branch for later programming changes; this also is the source for reports and display information at users' phones.
4. **Destination** — Each branch type has different possible destinations as indicated:

Branch Type	Destination(s)
GoTo	Extension, mailbox, branch ID, or outside number
Directory	List of names (entered in Function 62)

Additional notes

- **Automatic disconnect** — If ID9999 is programmed as a destination, the call will be automatically disconnected.
- **Call forward busy/no answer** — Can be programmed (and will be prompted for) only if an outdial number is the destination of a GoTo branch.
- **Call forward no response** — Programmed (and will be prompted for) only for a menu or directory branch.
- **Deleting a branch** — To delete a previously created branch, enter the branch ID, press **HOLD**, and confirm by pressing a scroll key (either ▼or ▲) and #.


ID 1
Main greeting
Menu
Daytime main greeting (Function 611): "Thank you for calling ABC Company. If you know your party's extension, you may enter it now; or select from the following. For Sales, press 1. For Administration, press 3. For Technical Support, press 3. For a company directory, press 8. Or, to reach the Operator, press 0."
Nighttime greeting (Function 612): "You have reached our offices after normal business hours. To leave a general message, press 5. To receive product information, press 6. To contact a technician on call, press 7. For a company directory, press 8. Or, if you know your party's extension, enter it now."
Holiday greeting (Function 613): "Our office is closed in observance of the holiday. To leave a general message, press 5. Or, if you know your party's extension, enter it now."
ID 11
Sales
GoTo Dial Ext. 290
ID 12
Admin.
GoTo Dial Ext. 104
ID 13
Technical Support
GoTo Dial Ext. 292
ID 14
ID 15
General delivery
GoTo MB 300
ID 16
Product information
GoTo MB 301
ID 17
Technician on call
GoTo Dial MB 520
ID 18
Directory

In the example above, the branch IDs and branch titles shown are for programming purposes only. The caller needs only to press **1**, **2**, *etc.*, to move through the choices.

Function 43: Automatic day/night mode table

You program the day/night mode table by selecting the day of the week, then entering the start time, and then selecting the mode — day or night. At the time you've programmed, the appropriate greeting for that mode will play and the system will follow the appropriate day or night forwarding. Enter the times in military time *(0000–2359)*. Each day can have up to six different times.

1. Select the day of the week by pressing a scroll key (either ▼or ▲).
2. Press # to confirm.
3. Enter the day's start time in 24-hour format.
4. Press # to confirm.
5. Select the mode — *DAY, NGT* — by pressing a scroll key (either ▼or ▲).
6. Press # to confirm.
7. Repeat steps 3–6 for the day's next setting **or** press # again to program another day.
8. When finished, press # again to exit.

Note: To delete an entry, press **HOLD**.

Day/night mode worksheet example

In the example below, night mode is programmed for:

- After 5:00 PM on Monday, Tuesday, Thursday and Friday.
- During lunchtime on Monday, Tuesday, Thursday and Friday.
- After 2:00 PM on Wednesday and Saturday.
- All day Sunday.

Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
0800 D	0800 D	0800 D	0800 D	0800 D	0800 D	
1200N	1200N	1400N	1200N	1200N	1400N	
1300D	1300D		1300D	1300D		
1700 N	1700 N		1700 N	1700 N		

Note: For the schedule to take effect, the system must be placed in the "auto" mode.

Function 5: Voice mail programming

To simplify initial installation, all programmed extensions will automatically have the generic personal greeting, *"You have reached the mailbox for extension* [xxx]*."* The mailbox user should replace this with a personalized greeting. Each mailbox must have a greeting recorded for the IVX 20c to consider the mailbox active.

Function 53: Guest/info mailboxes

Mailboxes numbered 300–309 can be programmed as either a guest or info mailbox. Enter the mailbox number and select *Guest* or *Info* by pressing a scroll (▼or ▲) key.

Guest mailboxes

Guest mailboxes are designed to be used by personnel, such as in outside sales or manufacturing, who do not have an extension assigned to them. A guest mailbox requires no programming other than the assigning of a name.

> **Note:** A guest mailbox can be handled like a regular extension (*i.e.,* listed in the directory, assigned a station key, etc.), and is password-protected by default.

If a programmable feature key is programmed as a virtual mailbox key with a guest mailbox number, the key's LED will blink, to indicate that new messages exist.[1] To retrieve messages from a station, press **VOICE MAIL** ✻ and then either press the DSS key or enter the mailbox number.

To record a greeting, press **PROG/HELP** ✻ and the mailbox number; then press # to confirm, and follow the prompts. The default password is the mailbox number.

To retrieve messages from the outside, press ✻ and the mailbox number **during the Main Greeting.**

Default: 300–309 as guest.

Info mailboxes

Info mailboxes can be used to give callers information on a variety of different subjects by "publishing" these mailbox numbers. Info mailboxes are identical to guest mailboxes except that the caller will not be given a record tone after the personal greeting (the information to be played). Instead, the caller will be forwarded as programmed in this function (default is the caller will be disconnected after the information is played). The maximum length of the record time is 14 minutes.

Guest/info mailboxes are created or deleted here, but are turned "on" only when a personal greeting (the information to be played) has been recorded. Deleting the personal greetings will turn "off" the mailbox.

To record a greeting, press **PROG/HELP** ✻ and the mailbox number; then press # to confirm, and follow the prompts. The default password is the mailbox number.

(Continued)

[1] Otherwise, the key is a DSS key that allows for single-key transfer of a call with no message indication.

Below is an example of a completed Programming Worksheet, showing the sequence of programming:

1.	2.	3.	4.	5.
MB	**Name**	**Type**	**CF day**	**CF night**
300	Dana	Guest		
302	Literature	Info	X/MB/ID	X/MB/ID

Each programming step is defined as follows:

1. **Mailbox number** — Enter a mailbox number, 300–309.
2. **Name** — The mailbox name is used for the display, reports, and as a programming aid. The name length can be no longer than 10 characters (see “Entering alphanumeric characters,” page C.2).
   Default: The Mailbox number.
3. **Type** — Select a mailbox type: Guest or Info.
   Default: Guest.
4. **and 5. Call forward** *(info mailbox only)* — An info mailbox can be set to call forward after the personal greeting has played to an extension, department, a mailbox or a branch ID for day mode and differently for night mode.
   Default: ID9999 (automatic disconnect).

Function 55: Message notification

On a mailbox-by-mailbox basis for user or guest mailboxes including MB501 on the C-Class with Integrated Answering Machine, the system can be programmed to call an off-premises number or another extension to deliver messages or dial to an external commercial paging network to activate a user's pager. The IVX 20c will call or page when the first new message has been left in a mailbox and will repeat (at the interval of minutes programmed in this function) until the new message(s) have been deleted, saved or moved.

The user can program either a phone ***or*** pager number.

The Installer and Administrator can set, on an individual-station basis:

- The number to be called
- A delay period
- The number of attempts (maximum of 99)
- The interval between attempts
- A “quiet period" to suspend phone delivery — *e.g.,* late at night (the quiet period is an on-and-off time that applies to all days of the week)

Note: Only pager ***or*** phone notification can be programmed — not both.

Function 551: Station delivery options

Programming of the station options, as shown below, can be performed by the Installer or Administrator. In addition, the user can change his phone number and pager number (but not phone or pager delay time). The phone number's maximum length is 24 digits.

	1. Number	2. Delay	3. Attempts	4. Interval	5. Quiet on	6. Quiet off
1. Phone	9725556789	30	6	60	10:30PM	7:15AM
2. Pager	9725551234	0	10	30		

To program, enter the station/extension number and choose **1** for phone number or **2** for pager number. Then, follow the prompts to set the parameters below.

1. **Phone/pager number** — The number to be dialed (**without** the CO line Group *[9, 8* or *7).*
2. **Delay** — How many minutes the system is to wait before dialing the phone or pager number. This allows the user to pick up a message if he is in the office.
   Range: 0–500. **Default:** 0.
3. **Attempts** — How many times the system will call/page.
   Range: 0–99. (0 turns off delivery.) **Default:** 3.
4. **Interval** — How many minutes should elapse between attempts.
   Range: 10–1440. **Default:** 30.
5. **Quiet period on** — When the quiet period should begin.
   Default: (None.)
6. **Quiet period off** — When the quiet period should end.
   Default: (None.)

Code	What it produces
#	# DTMF tone
*	* DTMF tone
F	Flash hook
P	2-second pause

To insert a special code, press the right scroll key (▲) to select the desired special code: **# , * , F** or **P**. Press # to confirm the inserted character and continue. Press # # to complete the entry. Use the left scroll key (▼) to backspace.
Once the number is saved you can use the scroll keys to move back and forth to view the number. To edit the number, you must delete it and enter the correct number.

Function 552: Delivery/paging parameters

The sequence of programming is as follows:

1. **CO line access** — Enter the CO line group (9, 8, or 7) that is to be accessed for delivery.
   Default: 9.
2. **Maximum lines** — Enter the maximum number of lines (in the selected CO line group) that the system can access simultaneously. Make enough lines available to accommodate high notification traffic (but be careful: if you make available **all** lines in the selected line group **and** high notification traffic occurs, the system could tie up all lines).
   Range: 1–19. **Default:** 1.
3. **Pager dialing pause** — When paging, the IVX 20c will send the mailbox number to be shown in the pager's display. To allow time for the paging service to answer, enter the pause, in seconds, to occur between when the IVX 20c dials the pager number and when it then dials the mailbox number.
   Range: 0–20. **Default:** 6.

Function 56: Cascade paging mailboxes

In addition to individual mailbox paging, the IVX C-Class system can support up to 10 cascade paging mailboxes (520–529). These can be assigned to anyone who requires escalating levels of paging beyond the single level available in all user mailboxes. In this function, you program the paging numbers and number of times each is to be paged before the next paging number is added; additionally, the mailbox owner can program these settings. To record a greeting, press **PROG/HELP** ∗ and the mailbox number; then press # to confirm, and follow the prompts. The default password is the mailbox number.

Cascade mailbox options

The user can program up to three paging numbers, of up to 24 digits each, to be paged whenever the mailbox takes a new or urgent message. The system will page the first paging number (for the number of times listed), then add the second paging number (for the number of times listed), then add the third paging number and will continue to page all three pagers until the message has been retrieved.

1. MB	2. 1st number	3. Attempts	4. 2nd number	5. Attempts	6. 3rd number
520	9725553232	2	9725554254	3	9725555452

To program this, enter:

1. **The mailbox number** — **Range:** 520–529. [Then press **1** to enter number programming, and proceed to Step 2.]
2. **First pager number** — The number to be dialed (**without** the CO line Group *[9, 8* or 7*).*
3. **Attempts** — How many times the system will page (up to 20) before adding the second pager number. **Range:** 0–99. (0 turns off delivery.)
4. **Second pager number** — The number to be dialed (**without** the CO line Group *[9, 8* or *7]).*
5. **Attempts** — How many times the system will page (up to 20) before adding the third pager number. **Range:** 0–99. (*0* turns off delivery.)

3. **Third pager number** — The number to be dialed (**without** the CO line Group *[9, 8* or *7]).*

Code	What it produces
#	# DTMF tone
∗	∗ DTMF tone
F	Flash hook
P	2-second pause

To insert a special code, press the right scroll key (▲) to select the desired special code: # **,** ∗ **, F** or **P**. Press # to confirm the inserted character and continue. Press # # to complete. Use the left scroll key (▼) to backspace. Once the number is saved you can use the scroll keys to move back and forth to view the number. To edit the number, you must delete it and enter the correct number.

Cascade paging parameters

The cascade paging mailboxes will use the same CO line group and pager-dialing pause as programmed in Function 552 (see page H.3).

Paging interval

To program the paging interval parameter for a cascade paging mailbox:

1. Enter the mailbox number *(520–529)*.
2. Press **2** to set parameters for the mailbox.
3. Enter the number of minutes for the interval between attempts.
   Range: 10–1440. **Default:** 0))

> **Note:** Once you change this setting from *0*, you cannot reset it to *0*.

(This page included for pagination purposes only.)

Function 6: Recording

Function 61: Re-record main greeting

The main greeting prompts are re-recorded here.

Recording a prompt

1. Practice the prompt by recording and re-recording (start and stop by pressing **1**).
2. When satisfied with its quality, press # to confirm.

- **Day main greeting** — Plays to callers if the auto attendant is programmed to answer in day mode. Press **1** to re-record.
  Default: *"Thank you for calling. Please dial the extension number of the party you wish to reach or dial 0 for the operator."*
- **Night main greeting** — Plays to callers when the system is in night mode. Press **2** to re-record.
  Default: No recording.

> **Note:** See also "Holiday main greeting" under "System prompts," *below*.

System prompts

- **Busy (530)** — Plays to the outside caller if an extension is busy.
  Default: *"That extension is busy."*
- **No answer (531)** — Plays to the caller if an extension does not answer.
  Default: *"That extension does not answer."*
- **Hold (532)** — Plays to the caller who makes a menu selection or enters an extension number.
  Default: *"One moment, please."*
- **Q/Z (534)** — Plays to a caller who has selected an alphabetic directory; instructs the caller to press **1** for the letters *Q* or *Z* since these two letters do not appear on the phone keypad; plays at the end of the first directory prompt (but only if a name in the directory starts with a *Q* or *Z)*.
  Default: *"For the letters* Q *or* Z*, use key number 1."*
- **No names matched (535)** — Played to the caller if, in a directory branch, the first letter he/she selected does not have any names associated with it, or if he/she has listened to all of the names played and has not made a selection. After playing the prompt, the IVX system forwards the call to the extension, branch or mailbox as programmed in call forward no response.
  Default: *"No names matched; one moment please."*
- **End of message (537)** — Plays after a caller leaving a message presses **1** to stop recording; the prompt then tells the caller his/her options.
  Default: *"To continue this recording, press 1; to return to the main menu, press 8; or, if finished, press ∗ and hang up."*
- **Holiday main greeting (540)** — Plays to callers when the system has been manually placed in holiday mode.
  Default: *"Thank you for calling. Our office is closed in observance of the holiday. You may dial your party's extension, at any time, or please call back during regular business hours."*

> **Note:** While in holiday mode, the IVX system follows night mode programming for call routing.

> **Note:** Deleting a system prompt by pressing **HOLD** (instead of #) restores to the default recording.

Function 62: Record directory names

This function is accessible only if a directory branch has been created as part of auto attendant programming. Enter the extension number and record the name (and, if this is a by-alpha branch, enter the name key.)

Default: Last name.

> **Important:** Print the worksheet provided on your ESI CD for preparing directories and making future changes. As names change, the Administrator can enter this function and change any field via the Administrator password.

1. Ext.	2. Recorded name	3. Key
102	George Straite	**4**
113	Janet Smith	**5**

> **Note:** To record the prompt "Enter the first letter of the person's last name" you you must enter Function 61 and then enter the ID number of the directory branch.

Each programming step is defined as follows:

1. **Extension number** — Enter the extension number for the directory name.
2. **Record name** — Press **1** to begin recording and press **1** again when finished.

Function 63: Message-on-hold (MOH) programming

MOH can be:

- A live feed from an external music source connected to the MOH connector located on the side of the cabinet.
- One of three default, generic MOHs pre-recorded by the factory.
- One of up to five custom MOHs loaded into the system by using a cassette recorder connected to the MOH connector.

Function 631: MOH source

This selects the source that will be played to callers on hold.

Code	Source
590	Live external source*
591	Pre-recorded music
592	Pre-recorded with *"please continue to hold"*
593	Pre-recorded with *"dial 0 or extension from hold"*
594	Customer-recorded message on hold

* Dialing off-hold doesn't work.

Default: 592 (generic message-on-hold).

Function 632: MOH recording

1. Connect the message/music source to the MOH port on the side of the cabinet.

   Note: The connector is monophonic-only — if you use a stereo source, you must either set it to output mono, if possible, **or** use a stereo-to-mono conversion cable (or adapter).

2. Enter **594**.
3. Press **1** to begin recording. To aid you in queuing, the source will be played through the phone's speaker.

   Note: The recorded material should not have a "beginning" or "end" — *i.e.*, so that playback can loop continuously.

4. Press **1** when finished. The recording will play back so you can review it.
5. Press # to accept the recording.

Function 633: MOH volume

If a custom MOH is recorded, the output volume can be adjusted in this function.
Range: 1 (faint)–12 (loudest).
Default: 6.

Notes: If an external audio source such as a radio is used for MOH, adjust the volume at the source.

To turn live MOH volume completely off, turn off volume at the source.

(This page included for pagination purposes only.)

SMDR

SMDR (station message detail reporting) call records are output in real time via an ESI phone system's **Maintenance/SMDR** serial port. Connect a standard serial printer or call accounting system to the serial port. SMDR data will be stored temporarily if a laptop is connected for programming (five minutes after you exit programming mode, the buffered SMDR will resume output to the serial port).

The output from the serial port is: 8 data bits, 1 stop bit, and no parity, 1200 baud.

SMDR may be output in one of two formats, selected in system programming: **tabular** or **CSV**. The tabular format is the default.

Tabular SMDR format

The tabular IVX SMDR output format, which is compatible with the standard Panasonic® DBS® format, is as shown below:

```
         1         2         3         4         5         6         7
12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678
T MM/DD HH:MM:SS HH:MM:SS NNN XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX                  LL
```

The columns are:

- **Call type** — Outbound ("O"), inbound ("I") or transferred ("T") at column 1.
- **Date** ("MM/DD") — Begins at column 3.
- **Start time** ("HH:MM:SS") — Begins at column 9.
- **Duration** ("HH:MM:SS") — Begins at column 18.
- **Extension number** ("NNN") — Begins at column 27.
- **Digits dialed** (right-justified)**/Caller ID** (left-justified) — Begins at column 31 (28 characters).
- **CO line number** ("LL") — Begins at column 77.

Each record is terminated with a line feed and carriage return character.

CSV SMDR format

The **comma-separated value (CSV)** format is compatible with *Microsoft® Excel®* and other spreadsheet applications. A CSV record will be output for each completed call, and will be represented as follows (word-wrapped):

Format:

```
"T","MMDDYYYY","HHMMSS","HHMMSS","NNN","XXXXXXXXXX. . .XXX","CCCCCCCCCC. . .CCC","LL"
```

Example A:

```
"I","07042002","000852","000059","101","9724229700","ESTECH SYS INC. ","54"
```

Example B:

```
"O","10312003","221502","020512","190","12125551212","","11"
```

(Continued)

The fields are:

- **Call type** (“T”) — Outbound (“O”), inbound (“I”) or transferred (“T”).
- **Start date** (“MMDDYYYY”) — Six characters, zero-filled.
- **Start time** (“HHMMSS”) — Six characters, zero-filled; 24 hour clock.
- **Duration** (“HHMMSS”) — Six characters, zero-filled.
- **Extension number** (“NNN”) — Three characters, space-filled, right-justified.
- **Digits dialed/Caller ID** (“XXXXXXXX . . . XXX”) — Up to 28 characters, null-filled.
- **Caller ID name** (“CCCCCCCCC . . . CCC”) — Up to 24 characters, null-filled.
- **Line number** (“LL”) — Two characters, null-filled, right-justified.

Each field is delimited with double quote marks and separated with a single comma. Null fields are still included as place holders (see Example B, p. J.1). Each record is terminated with a line feed and carriage return character.

Reporting conventions and rules

- Inbound and outbound call records are generated only for calls between a station and a CO line.
- The duration of each call record represents the period of time that that station controlled its portion of a call. A record is generated each time a station does any of the following:
  - Disconnects.
  - Places a call on hold.
  - Transfers a call.

  A single CO call could be included in multiple records if it is transferred from station to station.
- Periods when calls are placed on hold or attempts at supervised transfers are unsuccessful are included in the station's record.
- Periods when calls are on hold, in the auto attendant, leaving/retrieving voice mail or in an ACD queue are not included in call records.
- A new record begins when a station answers a call or a hold recall.
- Records will be generated independently for all stations in a conference. If more than one CO line is involved in a conference, each call record generated by that conference will be associated with only the last line disconnected.
- Dialed digits don’t include the line group or location number.
- Outbound calls begin a call record 10 seconds after the call has cleared toll restriction.

PC interface

Use an RS-232C cable to connect a PC’s serial port to the IVX system’s **Maintenance/SMDR** port.

When connected to the IVX system, the PC resets the baud rate for faster communications. Once the PC/IVX connection is made, the Installer can update system software.

> **Note:** SMDR data will be stored temporarily if a laptop is connected for programming (five minutes after you exit programming mode, the buffered SMDR data will resume output to the serial port).

Index

12-Key Digital Feature Phone, B.2
24-Key Digital Feature Phone, B.2
Access codes and toll restriction, E.3
Alphanumeric characters, entering, C.2
Amphenol connections, B.10
Answer ring assignment, E.2
Auto attendant programming, G.1–G.4
  Automatic day/night mode table, G.3–G.4
  Branches, G.1–G.3
  Directory branch, G.2
  GoTo branch, G.1
  Menu branch, G.1
Background announce key, F.7
Base Cabinet I, B.1
Battery. *See* Cautions
Cabinets
  Base Cabinet I, B.1
Caller ID, E.4–E.5
Call-forward key, F.7
Cautions, B.3
  Battery, B.3
  Fuse, B.3
  Power supply, B.3
CO lines, E.1–E.5
  Access codes and toll restriction, E.3
  Answer ring assignment, E.2
  Connecting, B.10
  Line disconnect, E.4
  Line receive volume, E.4
  Outbound line groups, E.2
  Parameters, E.4
Day/night mode, F.7
Day/night modes, E.2
Department programming, F.3–F.6
Digital Feature Phone, B.2
Digital Feature Phones
  Extension definition and routing, F.1
Esi-Dex, D.7, E.5
  System speed dial, F.4
Extension button mapping
  CO line key, F.6
  Private line key, F.8
  Speed dial key, F.6
  Station key, F.6
Extension definition and routing, F.1–F.3
  Analog ports, F.2
  Digital Feature Phones, F.1
Functions
  Function 2 — CO lines, E.1–E.5
  Function 3 — Extension programming, F.1–F.8
  Function 4 — Auto attendant programming, G.1–G.4
  Function 5 — Voice mail programming, H.1–H.5
  Function 6 — Recording, I.1–I.3
Fuse. *See* Cautions
Grounding, B.7
Headset key, F.7
Holiday mode
  Re-recording greeting, I.1
Hunt groups. *See* Department programming
Initializing (Function 11), D.1
LED functions, B.8
Line disconnect, E.4
Line receive volume, E.4
Mailboxes
  Cascade Paging, H.5
  Guest/info, H.1–H.2
Maintenance port, B.9, D.7, J.1, J.2
Manual day/night mode, F.7
Memory Module, B.1, B.6
Message monitor key, F.7
MOH, B.9
Mounting, B.6
Outbound CO line groups, E.2
Overhead paging, F.3
Overlays, B.2
Paging, B.9
Passwords, Installer and Administrator, D.1
Power, B.7
Power supply. *See* Cautions
Private line, F.8
Programming
  Accessing user station programming, D.1
  Keys, C.1
  System fixed numbering plan, C.2
Prompts, re-recording, I.1
Recording, F.4
  Recording directory names, I.2
  Re-recording system prompts, I.1
  Tone, D.3
Regulatory information (U.S. and Canada), B.4
Ringer equivalence number (REN), B.4
Serial port, B.9, D.7, J.1, J.2
Site location, B.5
SMDR, B.9, D.7, J.1–J.2
Speed-dialing. *See* Esi-Dex
Status Indicator Lamp, A.1
System Cabinet, B.6
System prompts, re-recording, I.1
System timing parameters, D.3
Time/date, setting, D.2
Toll restriction, E.3, F.4
Tone, recording, D.3
Transformers, wall-mount, B.1
UL (Underwriters' Laboratories), B.3
Virtual Mailbox Key, E.3
Voice mail programming
  Cascade paging mailboxes, H.5
  Guest/info mailboxes, H.1–H.2
  Message notification, H.2

We Make It Easy To Communicate

www.esi-estech.com